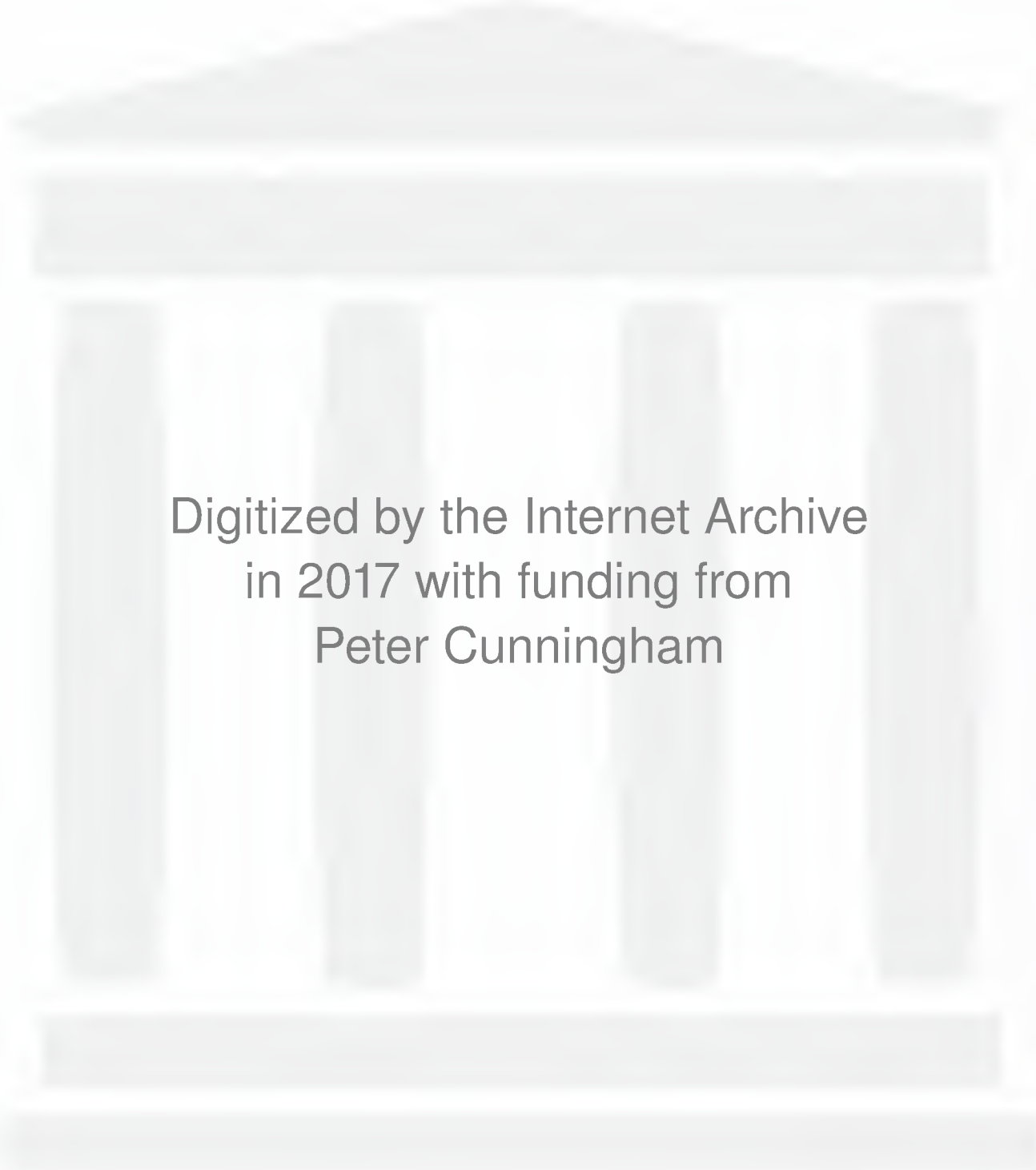




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Research

Bulletin

Route to:

A Publication from INPUT's Information Services Market Analysis Programme--Europe

Exchange Rate Movement Reduces European Market Values

There has been considerable movement in European exchange rates against the U.S. dollar during the course of 1993. This bulletin shows the impact of these changes when market forecasts for Europe as a whole are re-calculated.

Exchange rate changes between the end of 1992 and the end of 1993 have lowered the dollar value of European business by 11%. INPUT's forecasts published in June 1993 predicted a growth of 5% in the European market between 1992 and 1993. The net result is that the 1993 information systems market is now valued at \$93 billion compared to the 1992 market which was valued one year ago at \$100 billion, a fall of some 7%.

Over the past three years exchange rate movements have more or less cancelled themselves out for Europe as a whole. In 1992 they also *reduced* the market value by around 7%, but in 1991 they *increased* the market by 15%. The average value of European information services dollars is therefore very similar at the end of 1993 to its value at the end of 1990. In that interval the market increased from \$61 billion in 1990 to \$93 billion in 1993, a 52% rise.

INPUT's methodology consists of establishing a forecast for each European country in its own

local currency, including the local effects of inflation. Each of the 17 country forecasts is then consolidated into a single overall European forecast in U.S. dollars and ECUs.

The market forecast after applying the latest exchange rates is shown in Exhibit 1. The details for each delivery mode are given in Exhibit 2.

The table in Exhibit 3 provides a comparison between the 1993 market sizes published in June of 1993 and the same forecasts calculated using the latest exchange rates in January 1994. Detailed analysis and commentary on each sector is available in related reports from INPUT.

Exhibit 4 lists the exchange rates which INPUT will be using throughout 1994 for all market forecast and revenue conversions. For the sake of simplicity and consistency INPUT normally standardises on a set of rates to use through each calendar year.

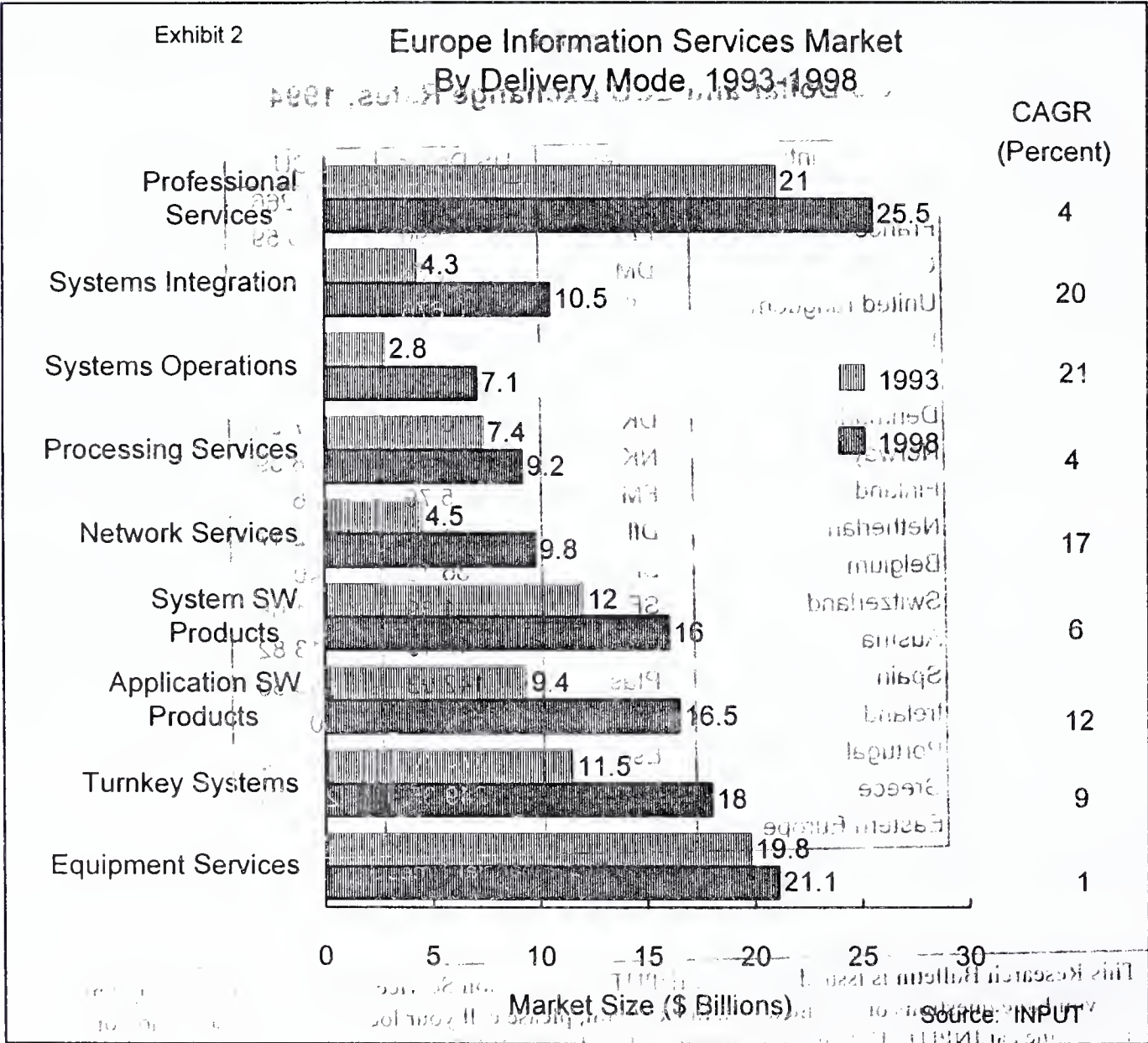
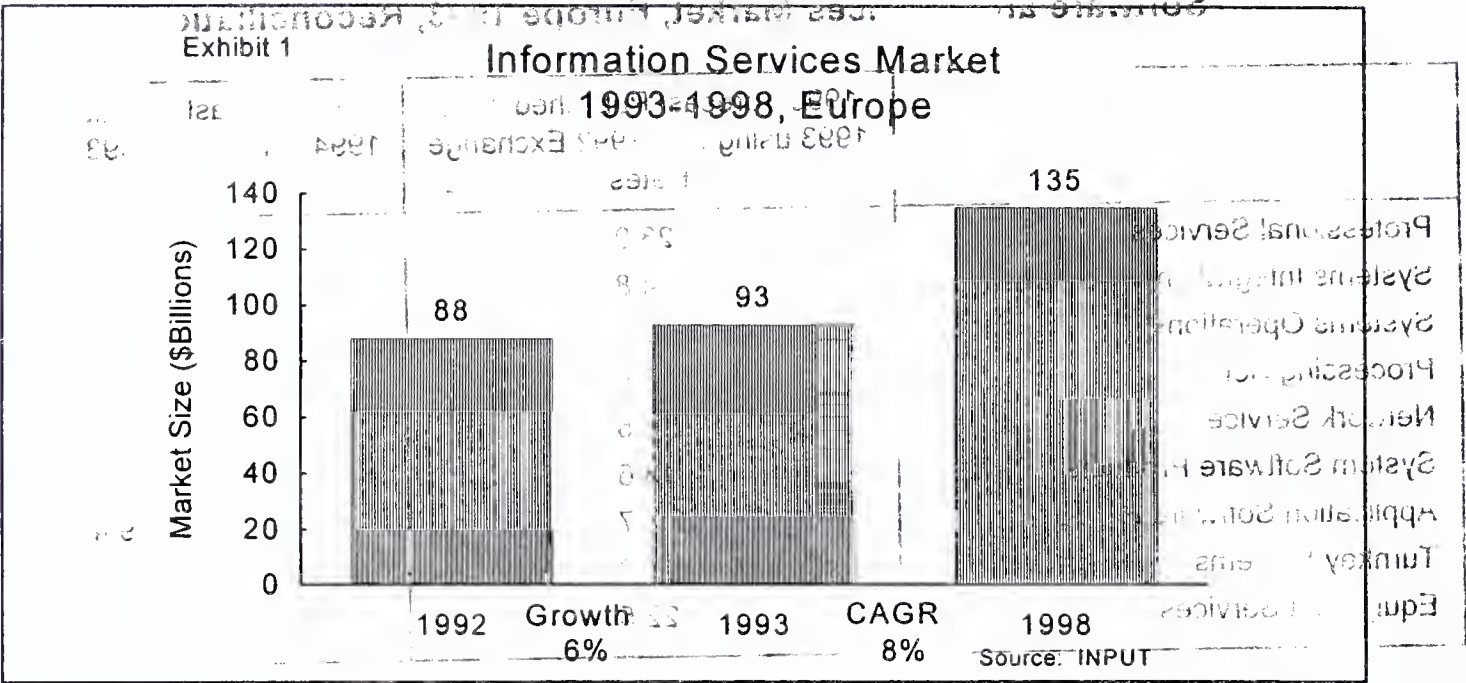


Exhibit 3

Software and Services Market, Europe 1993, Reconciliation

	1993 Forecast Published June 1993 using End 1992 Exchange Rates	1993 Forecast Restated January 1994 using End 1993 Exchange Rates
Professional Services	23.9	21.0
Systems Integration	4.8	4.3
Systems Operations	2.7	2.8
Processing Services	8.5	7.4
Network Services	5.5	4.5
System Software Products	13.6	12.0
Application Software Products	10.7	9.4
Turnkey Systems	13.0	11.5
Equipment Services	22.5	19.8

Source INPUT

Exhibit 4

US Dollar and ECU Exchange Rates, 1994

Country	Currency	US Dollar	ECU
Europe	\$	1	1.266
France	FF	5.90	6.59
Germany	DM	1.74	1.94
United Kingdom	PS	0.676	0.753
Italy	Lira (K)	1.71	1.90
Sweden	Sek	8.34	9.32
Denmark	DK	6.79	7.56
Norway	NK	7.52	8.39
Finland	FM	5.79	6.35
Netherlands	Dfl	1.94	2.17
Belgium	BF	36.15	40.41
Switzerland	SF	1.39	1.65
Austria	Sch	12.19	13.82
Spain	Ptas	142.92	159.30
Ireland	IP	0.71	0.791
Portugal	Esc	176.70	197.10
Greece	Dra	249.35	280.00
Eastern Europe	\$	1	1.115

Source: Financial Times January 1994

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Research Bulletin

A Publication from INPUT's Information Services Market Analysis Programme – Europe

Vol. V, No. 2

February 1994

IBM Services Grow Rapidly but Service Margin Shrinks

Services Growth

IBM is achieving an increasing proportion of its business from software and services. However the cost of doing so is very high with gross profit margin from services falling below 15% overall.

In its global business results IBM reported that service revenues were up 32% from \$7,352 in 1992 to \$9,711 in 1993.

Although the services business contributed an additional \$2.35 billion that was not enough to compensate for the fall in all other sectors. Total revenues fell 3% from \$64.5 billion in 1992 to \$62.7 billion in 1993.

IBM describes the business environment in Europe as "tough" and yet its services business, other than maintenance, is growing fast. According to preliminary calculations INPUT estimates that IBM's European software and services revenues grew to just under \$10 billion in 1993 in Europe. This increased their lead over other vendors and raised IBM's market share close to 10%.

The bulk of the European increase came from the professional services delivery mode. These increases result largely from IBM offering the technical skills of its work force to customers for a financial fee. In the past many professional services were included in the system prices.

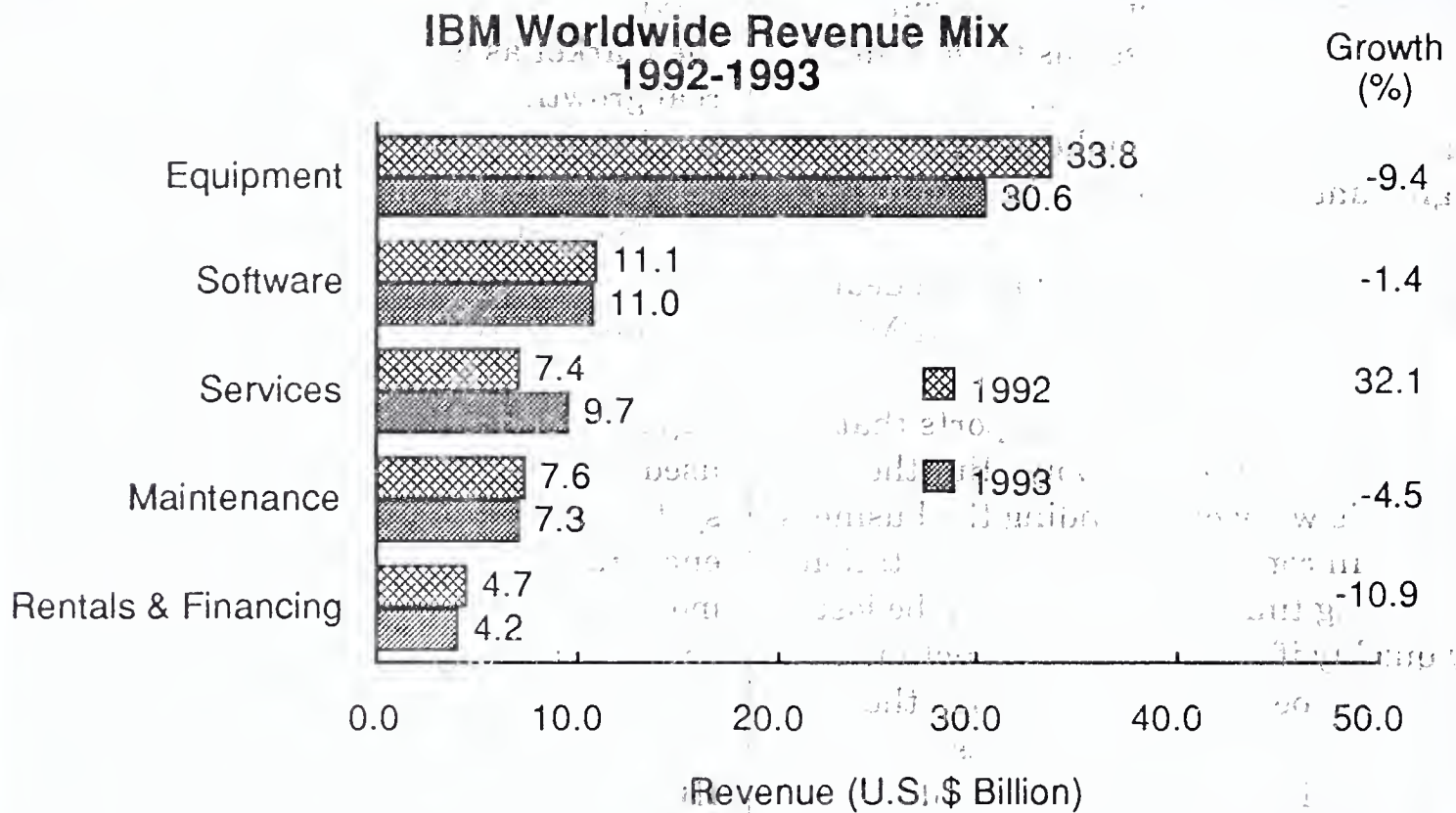
Services Margins Fall Further

The analysis shown in Exhibit 1 is based on IBM's provisional financial results published in January 1994. It shows just how fast non-maintenance service revenues are growing compared to all the other business sectors.

The bad news is that this cannot compensate fully for the loss in equipment revenues. A further problem is that the costs associated with services have increased even faster (37% in 1993) than the revenues as shown in Exhibit 2.

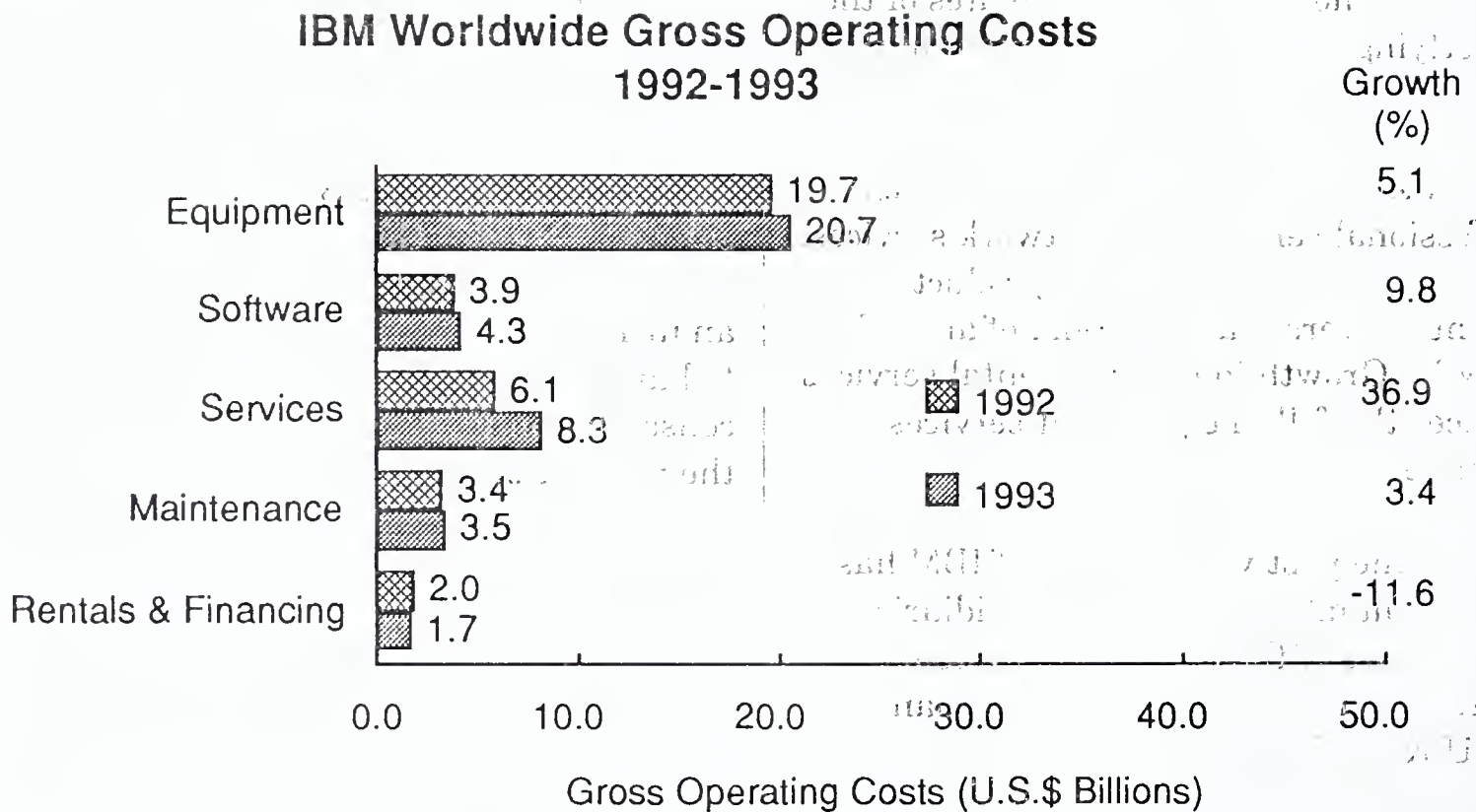
It is clear that the new services businesses are not making a very positive contribution to overall margins. In re-structuring, IBM

Exhibit 1



Source: IBM 01/94

Exhibit 2



Source: IBM 01/94

moved many people out of overhead positions into customer-facing revenue earning roles. Now it seems those same people will need to be much more productive in order to make acceptable margins and remain competitive in future.

One new service that gained a good deal of media attention during 1993 was IBM's establishment of a management consultancy business. IBM reports that demand has exceeded supply. But the company is wary of expanding the business too fast. In consultancy a good reputation takes a long time to build, but can be lost very quickly if expectations are not met. So IBM can be expected to develop the management consulting business at a steady pace in order to provide and maintain a high quality of service.

European Delivery Mode Analysis

Exhibit 3 shows INPUT's estimates of the underlying trends in each segment of the software and services business of IBM Europe. The delivery modes that have performed well are systems operations, professional services and network services. The fall in systems software product revenue reverses a long trend of annual growth. Growth in environmental services reduces the fall in equipment services revenue.

During the past year and a half IBM has set up a number of country subsidiaries to win a share of the outsourced systems operations market. Both the German and the U.K. businesses have won significant contracts.

Rapid growth in IBM's professional services business runs against the trend in the market as a whole where there is no real growth. The bulk of the professional services market is accounted for by custom software development contracts. For IBM this is not the case.

The bulk of IBM's professional services derives from what IBM terms "operational support services". Many of these services used to be provided bundled as part of a system purchase. In recent years, encouraged by customers who wanted a more predictable level of support service, IBM has unbundled these services and they are normally fee-earning.

IBM's Information Network provides network services to IBM customers globally. This market continues to grow strongly driven by the continuing trends to distributed systems, electronic commerce and networked business structures.

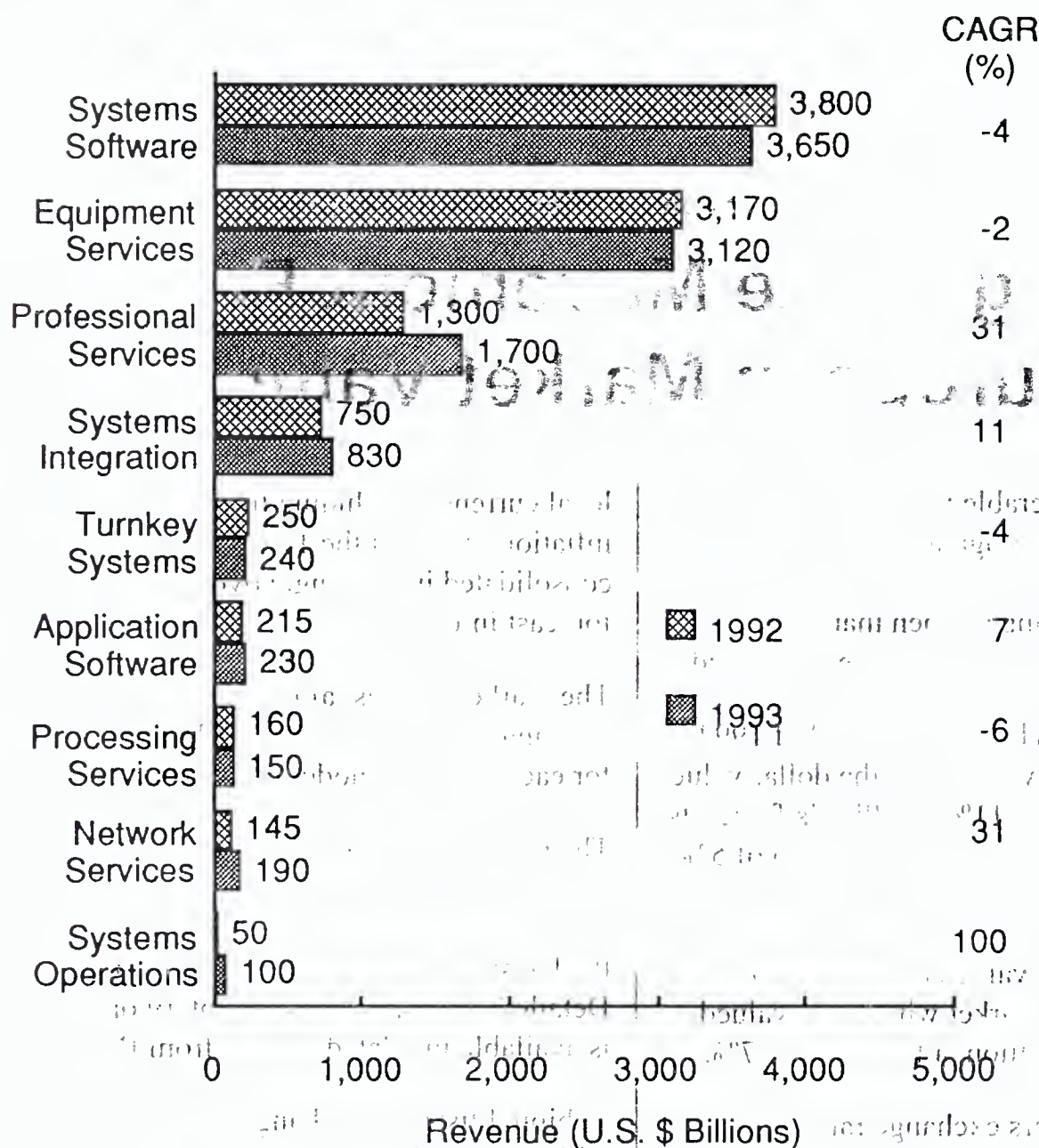
IBM attributes its global fall in systems software product revenue to slow sales of one-time licences for AS/400's. AS/400 sales in Italy and Germany were well below expectation, though the U.K. reports an increase. Licence revenue is also likely to have been affected by widespread consolidation of mainframe sites, reducing the number of licences.

IBM U.K. Returns to Revenue Growth

IBM's European business results are not yet announced. They will have been reduced both by the severity of recession and by adverse movement of U.S. dollar exchange rates during 1993. In the U.K. however both these factors have been countered.

Exhibit 3

Preliminary Revenue Estimates IBM Europe, 1993



Source: INPUT estimates

IBM U.K. reports its revenues broken down into national and export sectors. National revenues, from sales to the U.K. market, reached a peak in 1989 falling each year since. Last year this trend was reversed with a revenue climb of 7% from

£1,616 million in 1992 to £1,725 million (\$2.75 billion) in 1993. Even so IBM U.K. still made a loss on the year of £174 million showing there is still much to be done to restore IBM's fortunes in Europe.

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Research Bulletin

A Publication from INPUT's Information Services Market Analysis Programme – Europe

Vol. V, No. 3

March 1994

IBM UK Seen As Role Model for New IBM Business Structure In Europe

Over the last four years IBM UK has been in a state of continuous change and re-structuring. It looks as though the pain associated with re-organising and cutting the work force from 18,000 to 11,000 has begun to pay off. The business has been transformed from Headquarters led command and control management to a federation of 35 business units with fully delegated management responsibility. For the first time since 1989 IBM UK revenues started to rise again in 1993. Overall customer satisfaction shows a similar steady improvement over the past two years.

Many of the changes implemented by IBM UK are now being assessed or adopted by other subsidiaries in Europe. IBM UK is seen as something of a transformation role model for the rest of IBM.

Nick Temple, CEO of IBM UK, is the driving force for transforming his organisation into a network of around 35 business units. To a large extent in recognition of the company's achievements in IBM UK, Temple has become the first UK CEO appointed as a VP to IBM's main

board. He is also a VP to IBM Europe and a member of IBM's worldwide strategy board.

In these roles he is able to share his experience of re-engineering and business transformation in IBM UK as well as bringing back insights as to what the future might hold elsewhere in IBM. He is quite clear that the computer is still in its infancy, that IBM's foundations will remain technological, but that the focus of the company will always be solutions for customers.

In support of this new customer focus he points to IBM's research centres. These centres have a reputation for advancing the course of physics with pure research. Today a majority of projects in these centres now involve customers in applied research.

IBM UK Returns to Revenue Growth

IBM UK reports its revenues broken down into national and export sectors. National revenues, from sales to the U.K. market, reached a peak in 1989 falling each year

since. Last year this trend was reversed with a revenue climb of 7% from £1,616 million in 1992 to £1,725 million (\$2.75 billion) in 1993.

Despite the continuing recession elsewhere in Europe, IBM (UK) also achieved 9% growth in export revenues from £2,135 in 1992 to £2,332 in 1993. This followed two years of revenue drop since it peaked in 1990.

Export revenues are mainly sales of U.K. produced IBM products to other European subsidiaries of IBM. Both UK manufacturing plants grew revenues during 1993. IBM manufactures PCs at Greenock in Scotland and discs and boards at Havant in southern England, where sales to OEM's contributed for the first time.

In spite of these achievements the business still returned a loss of £174 million (\$110 million) in 1993. This was considerably smaller than the £767 million loss in 1992, but still well below IBM's acknowledged objective to break even in the U.K.

Re-engineering Continues

In June of 1993 IBM (UK) publicised the restructuring undertaken since 1990. In January 1994 a further reorganisation was announced for the businesses involved in solutions. CEO Nick Temple sees the transformation of the business as a "continuous learning experience". The re-engineering of IBM UK is a task which will never finish, market needs and leading competitors change too fast.

IBM management spend considerable resources benchmarking their competitors. They seek to equal the best business practice, and be there first if possible.

Exhibit 1 summarises the impact of change over the last four years on UK sales and service branches.

Exhibit 1

IBM UK Decentralisation Timetable

- | | |
|------|---|
| 1990 | Geographic branch sales |
| 1991 | Each branch given industry or product focus and profit targets, but has little cost control |
| 1992 | Market share and customer satisfaction added to branch goals |
| 1993 | Branches become federated businesses with responsibility for: <ul style="list-style-type: none"> • Customer satisfaction • Staff morale • Profit • Cash • Market share |

Source: IBM

The original IBM UK headquarters has also been transformed into a small staff of around 100. The HQ is not involved in the day to day operations of each business unit. However it retains a number of key corporate responsibilities (see Exhibit 2).

These are most clearly specified by the management committees now in place.

Exhibit 2

IBM UK Management Committees

Committee	Chairman
Management Board	N. Temple
Strategy	D. Morriss
Group Investment	J. Aziz
Brand Management	G. Lock
Customer Driven Quality	G. Lock
Human Resources	D. Morriss

Source: IBM

The structure which has evolved for IBM UK business units is illustrated in Exhibit 3. It comprises four basic groups:

- Platform providers - supplying system software products
- Product providers - making, delivering and supporting
- Integrated solution providers - delivering outsourcing services
- Industry solution providers - delivering systems

Within this last group is the Industry Business Division which brings together all the business units which have a niche solutions market focus.

Education & Training

An example of the delegation of responsibility to business units is the transformation of the education and training function. This business found

Exhibit 3

IBM UK Federation of Businesses

- **Platform Providers**
- **Product Providers**
 - *Customer Service Division*
 - Maintenance
 - Product Support Services
 - Business Recovery Services
 - Site services
- **Integrated Solution Providers**
 - *ISSO (UK)*
 - Outsourcing
 - Information Networks
 - *Service Plus*
 - *PROCORD*
- **Industry Solution Providers**
 - *Industry Businesses Division*
 - Banking
 - Insurance
 - Retail
 - Utilities
 - Public Service
 - Oil, Pharm & Chem Production & Engineering
 - Workflow & Image, Scientific
 - Project Management
 - System/Network Management
 - Systems Design
 - Software House
 - Open Client/Server
 - *Marketing & Operations*
 - *Education*
 - *Consulting Group*
 - *Commercial Sales*

Source: IBM

that it's traditional market, training courses on IBM mainframe software products, was shrinking. The effects of recession, downsizing, open systems and PC computing were reducing demand for training.

The education business unit researched the market, identified the new training needs and re-engineered and re-marketed their offerings. As a result the business recovered and is once again contributing profits to IBM UK.

In the past training courses had followed naturally the launch of IBM's product enhancements. Now they are designed to follow local market demand rather than a central grand plan.

U.K. Customer Satisfaction Rising

IBM measures customer satisfaction regularly using external agencies. Overall satisfaction in the U.K. has steadily increased from a score of 69 out of a possible 100 in June 1991 to a score of 78 out of 100 in December 1993. Customer confidence is returning. Over 50% of customers now respond to the surveys.

Responsibility for the performance of each business unit, in terms of customer satisfaction, is now placed directly with the management of that unit. A management committee within headquarters monitors progress maintains integrity.

International Leverage and Partnering Ambitions

One of IBM's greatest assets is its powerful position in every market around the world. In theory this gives it a competitive advantage when dealing with the global needs of multi-national customers.

But this advantage has been difficult to manage in the old regime of a strong central HQ-oriented management style. Decisions on global projects have often been escalated up to worldwide HQ for resolution. This has devalued the ownership of decisions for local management.

For example a central deal with a multinational customer agreed terms for the implementation of a system to be delivered in several different countries. However to achieve local implementation the deal had to be re-negotiated with each local subsidiary. Terms such as support response times, availability of application skills, etc. could not easily be settled at a global level.

IBM now plans to use its networked business unit structure to gain international leverage. It intends to gain global synergy between businesses in different regions or countries. It expects the autonomy of management in each unit to strengthen its ability to deal with client projects globally. Local management will take decisions in the best interests of their unit. Central management will be much less involved in making decisions.

This global synergy should bring together teams of solutions providers not only from within IBM but also among its business partners. This will present new

opportunities for international cooperation for software and professional services vendors working in partnership with IBM.

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Research Bulletin

A Publication from INPUT's Information Services Market Analysis Programme – Europe

Vol. V, No. 4

April 1994

Siemens Nixdorf Strengthens Professional Services Focus

Siemens Nixdorf Informationssysteme (SNI) has been highly visible as Europe's market leader in sales of packaged turnkey systems for many years. In contrast, the company's broad professional services capability is only now becoming visible. The Professional Services unit has now been set up as a regional profit centre, both as a source of revenue in its own right and as a catalyst for product sales.

The mission of the Professional Services unit covers the whole services value-added chain from consulting to operational support. A prime example of the strength and depth of experience available is the way fixed-price services have been packaged with SNI's R/3 LIVE suite of applications systems. A gain in professional services revenue of 30% during 1993 indicates that SNI is likely to increase its market share again in 1994.

Professional Services Focus on Value-Added Chain

Most equipment vendors competing against SNI have been striving for years to focus sales people and customers onto

their software and services strengths. Only in 1993 did SNI decide that it needs a pre-eminent position in both solutions and services sectors. It set up a Professional Services business to operate closely with account managers operating in all its market channels.

SNI has been criticised in the past for operating on too broad a front in the IT market. Much of its re-organising in 1993 was to strengthen its specialist core competencies. The company now summarises its business direction as twofold:

- To be a leading provider of competitive computer products world-wide
- To be a leading solutions and services provider

The remit of the Professional Services unit extends across all system-related project services. Product and customer support services and training are handled within other units.

SNI defines its professional services, throughout the whole IT value-added

chain, as including everything from consulting to customer-specific software development and realisation. These stages are seen as:

- Strategic planning
- IT concepts
- Realisation of solution
- Integration
- Training
- Operation

In addition, SNI has other groups of experts with core competences in:

- Mainframe/UNIX
- Office/Desktop
- Networking
- CASE
- Application software
- Third-party products

The Professional Services unit does not sell products, but can sell service direct to clients without involving the product sales force.

SNI Gets Organised for Professional Services

In April 1993 SNI established a new matrix organisation structure. The nature of this new structure is shown in Exhibit 1. This introduced a strong sales focus on customer account management.

Demand for the value added by professional services is recognised within SNI as a powerful driving force in the computer market. In October 1993 the company confirmed professional services as a key strategic capability within every country operation. SNI sees no advantage in imposing a uniform professional services structure on different countries or regions. But there are guide lines for each unit in order to provide a common SNI Professional Services culture for project management and quality assurance.

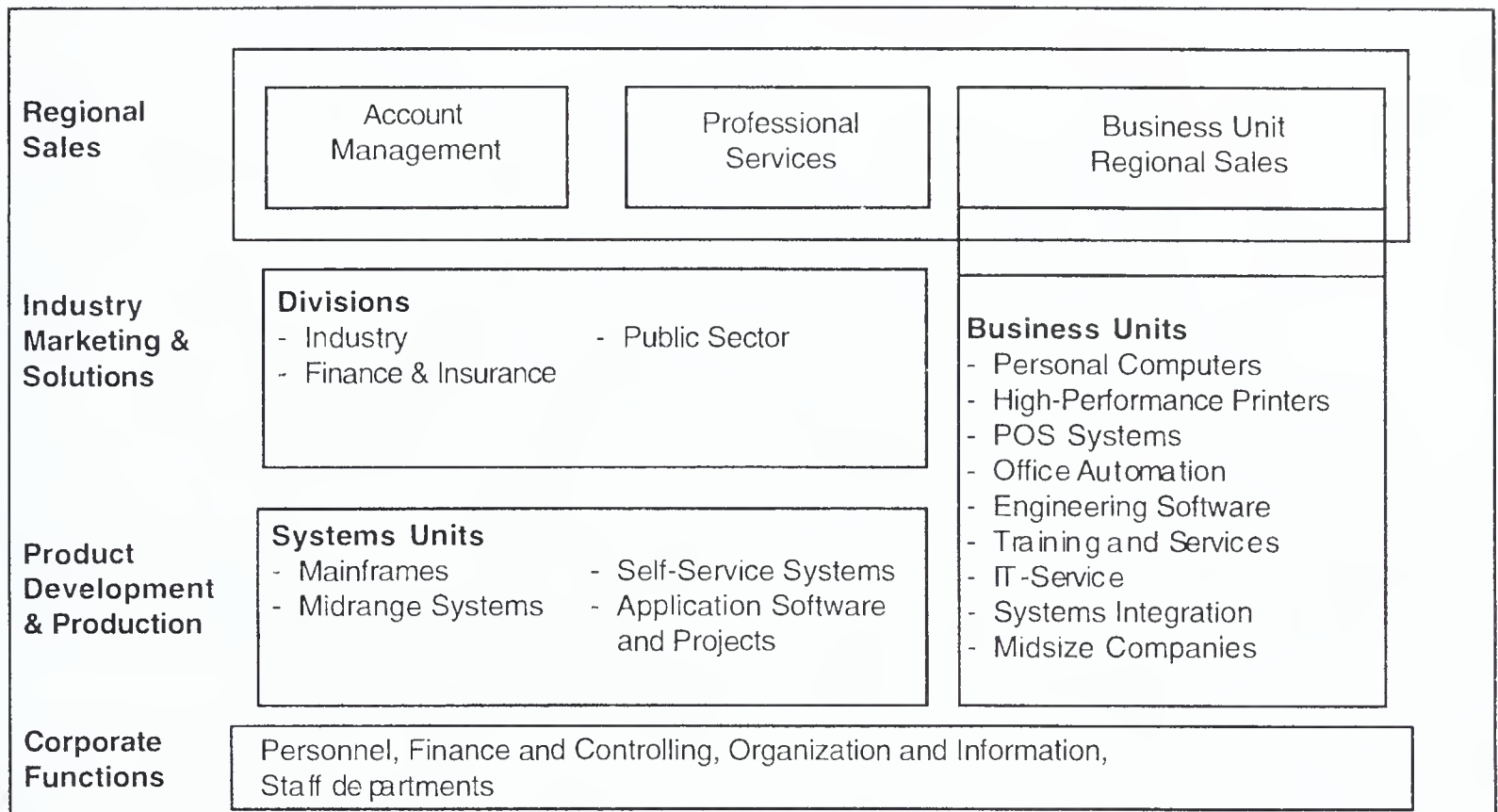
The new organisation's task is to establish professional services capability as a business winning asset for SNI. Judging by the increased professional services revenues obtained in 1993, it is already having some success.

The business objectives of the Professional Services unit at SNI are:

- To be the systems house for SNI's regional markets, providing all types of professional services including those for turnkey systems and systems integration projects. (Education and training functions are managed by another business unit.)
- To be a profit centre with a sales and marketing mission for professional services
- To support the sales units with specific SNI product-related expertise.

Exhibit 1

Siemens Nixdorf Organisation



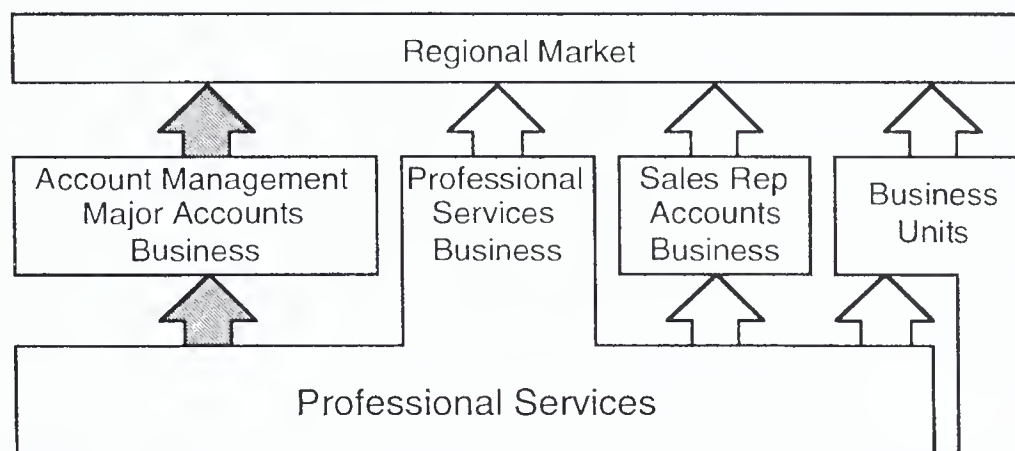
Source: Siemens Nixdorf, Updated April '94

The Professional Services unit has a variety of relationships with other business units in SNI. Exhibit 2 illustrates the different roles the unit can play in delivering services to regional markets.

There is no single preferred route to market for the professional services function in each country. Channel strategy depends strongly on the historic focus of a country subsidiary.

Exhibit 2

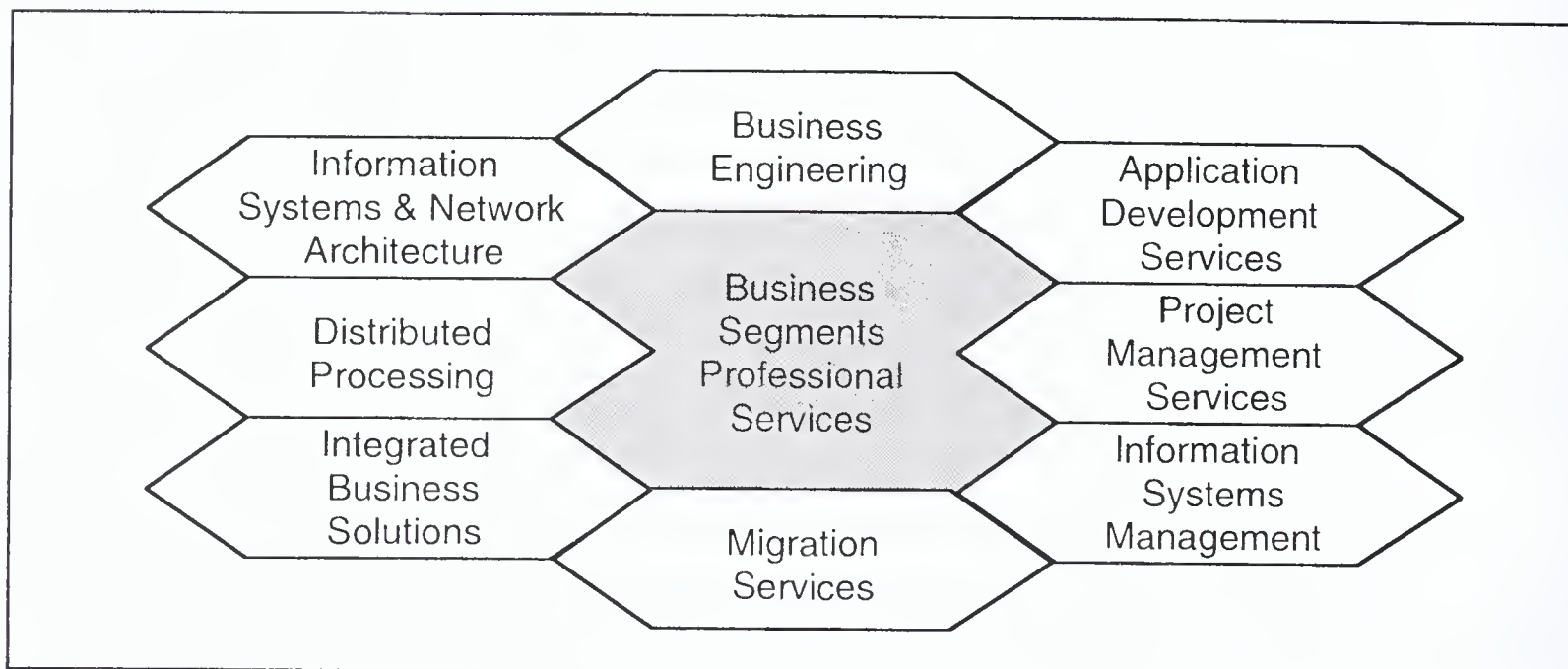
Professional Services Channels to Market SNI



Source: SNI

Exhibit 3

SNI Range of Professional Services



Source: SNI

Exhibit 3 illustrates the breadth of services offered by SNI.

Services Packaged for R/3 LIVE

An important element of the newly formed Professional Services unit is its dedicated marketing group. A recent example of a services initiative is SNI's launch of a package of services for SAP's UNIX-based integrated business applications suite R/3. Exhibit 4 shows the major components of the services package.

The objective is to make it easy to buy services for the design, implementation, support and operation of an R/3 system. Conventionally these stages have all been very variable in price and content. This made it difficult for the customer to make purchase decisions or measure results.

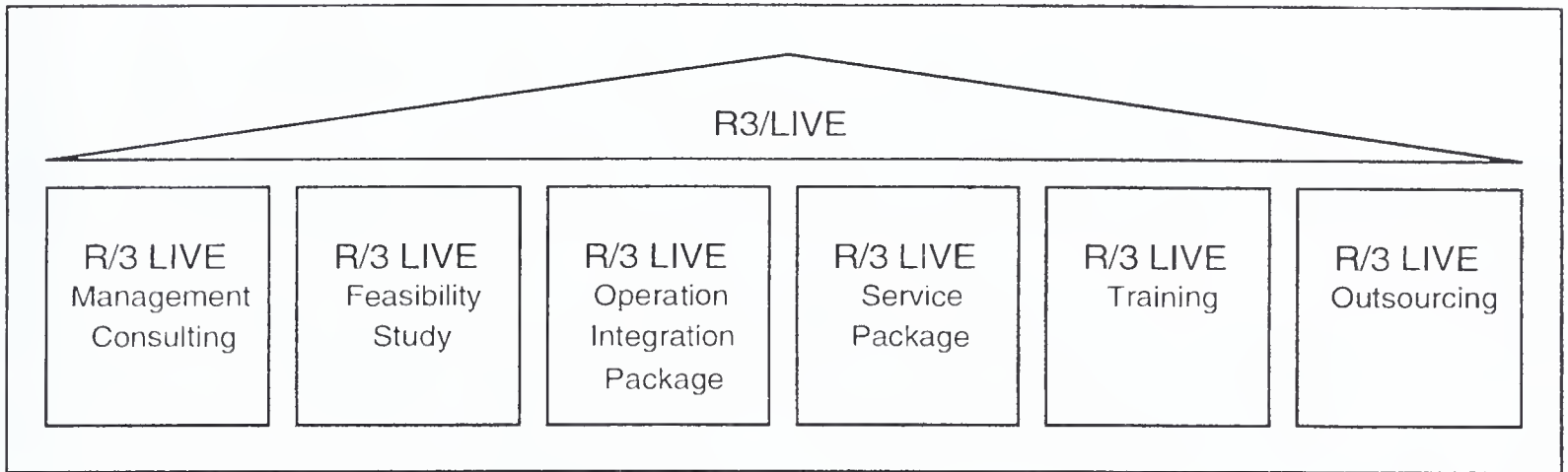
SNI have packaged up the services to make each element much more predictable in terms of cost and time scale, often with fixed prices for elements.

SNI expect to be relatively self-sufficient when it comes to implementing such systems, with only limited call on third parties. Numerous new partnerships with management consultants or specific solution providers are being formed to support clients with specific business or industry needs outside of SNI's core competencies.

Self-sufficiency in the past has left SNI with a weaker third-party channel structure than many of its competitors. The Professional Services unit recognises that it needs to co-operate more with consulting firms and software houses.

Exhibit 4

**SNI's R/3 LIVE Service Concept for
SAP's Application Software Product R/3**



Source: SNI

It also plans more integration of third-party products. But it may remain weak in its use of VARs compared to other equipment vendors.

SNI puts great emphasis on project quality, applying uniform methods and tools across the world and gaining ISO 9001 certification. It intends to retain overall project responsibility as a primary customer benefit, even when working with partners.

Market Share Increases

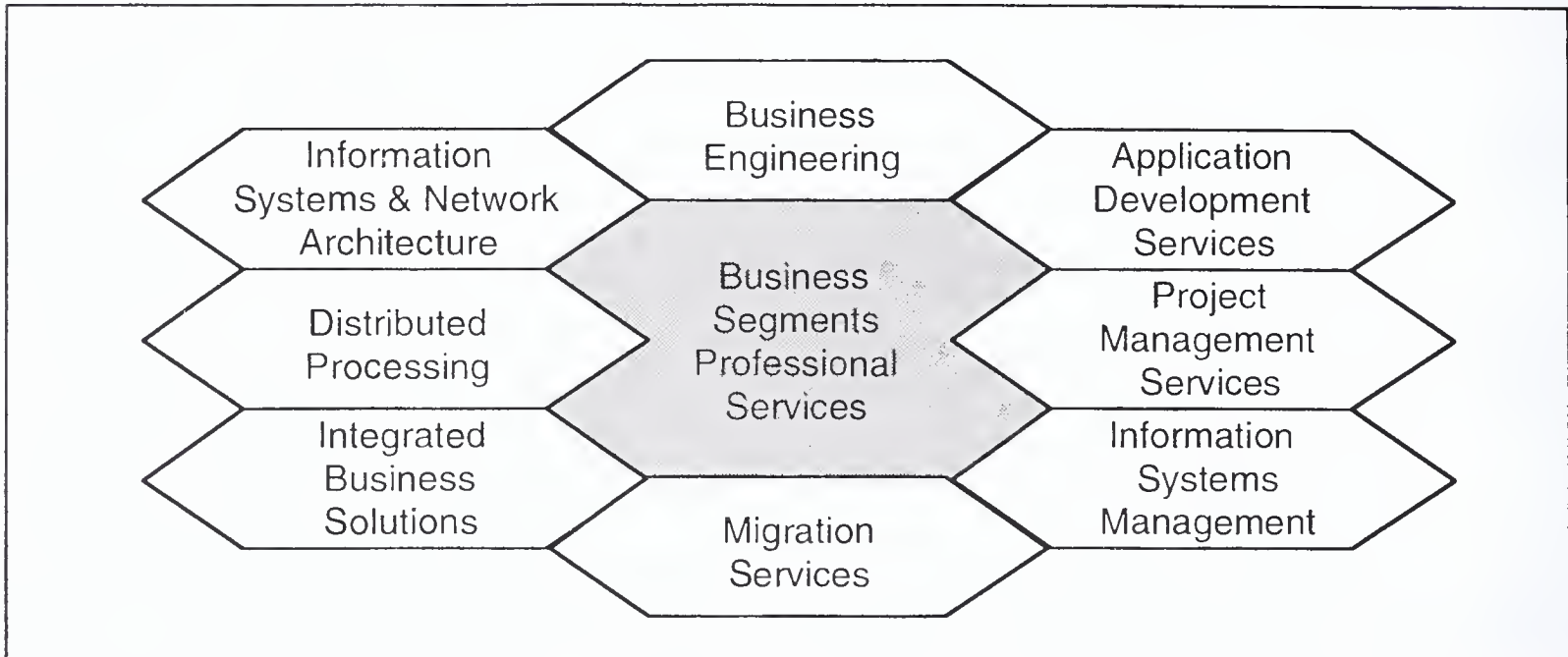
SNI's European Professional Services unit revenues increased 8% overall in

1993. Exhibit 5 shows that turnkey system services fell but systems integration services and other professional services rose. These are the first indications that SNI is capable of winning an increased market share in the professional services sector.

The professional services market as defined by INPUT as a delivery mode was only forecast to grow by 4% in Europe during 1993. SNI's achievement of \$340 million revenues in this sector gives it an estimated 1.4% market share, putting it in 8th place among the leading vendors in Europe.

Exhibit 3

SNI Range of Professional Services



Source: SNI

Exhibit 3 illustrates the breadth of services offered by SNI.

Services Packaged for R/3 LIVE

An important element of the newly formed Professional Services unit is its dedicated marketing group. A recent example of a services initiative is SNI's launch of a package of services for SAP's UNIX-based integrated business applications suite R/3. Exhibit 4 shows the major components of the services package.

The objective is to make it easy to buy services for the design, implementation, support and operation of an R/3 system. Conventionally these stages have all been very variable in price and content. This made it difficult for the customer to make purchase decisions or measure results.

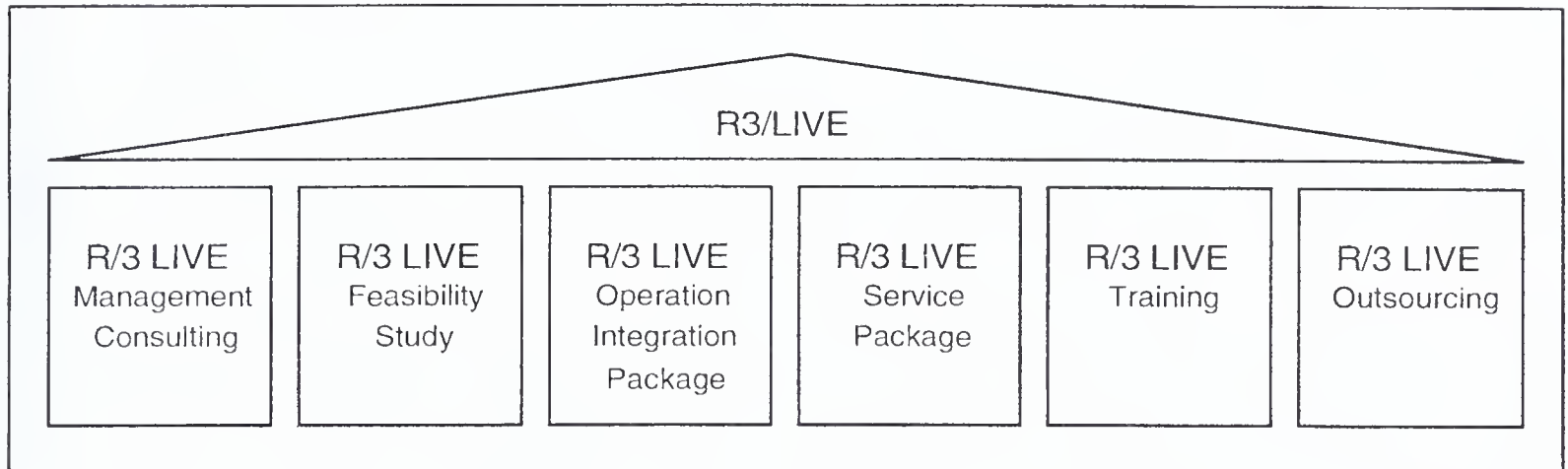
SNI have packaged up the services to make each element much more predictable in terms of cost and time scale, often with fixed prices for elements.

SNI expect to be relatively self-sufficient when it comes to implementing such systems, with only limited call on third parties. Numerous new partnerships with management consultants or specific solution providers are being formed to support clients with specific business or industry needs outside of SNI's core competencies.

Self-sufficiency in the past has left SNI with a weaker third-party channel structure than many of its competitors. The Professional Services unit recognises that it needs to co-operate more with consulting firms and software houses.

Exhibit 4

**SNI's R/3 LIVE Service Concept for
SAP's Application Software Product R/3**



Source: SNI

It also plans more integration of third-party products. But it may remain weak in its use of VARs compared to other equipment vendors.

SNI puts great emphasis on project quality, applying uniform methods and tools across the world and gaining ISO 9001 certification. It intends to retain overall project responsibility as a primary customer benefit, even when working with partners.

Market Share Increases

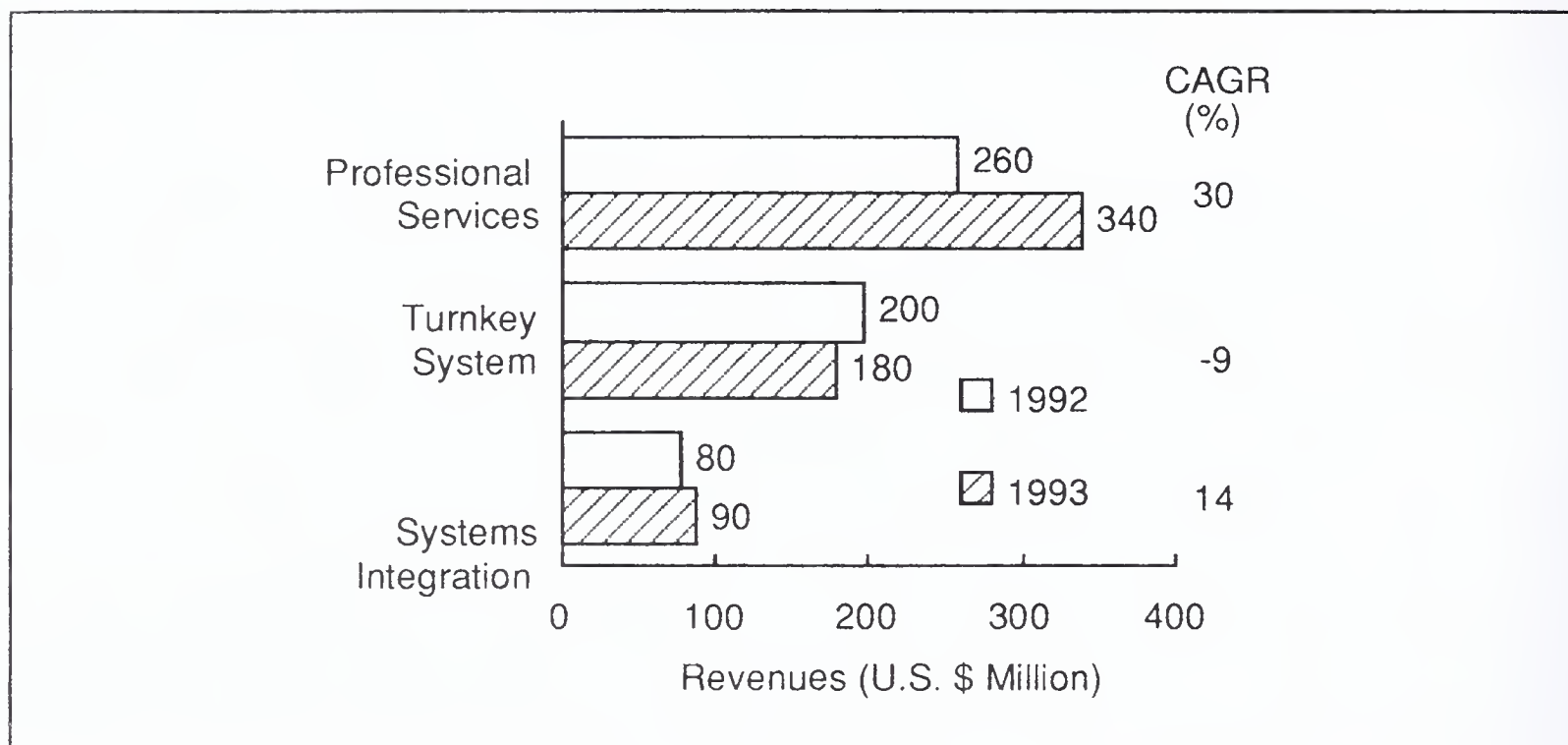
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Exhibit 5

Professional Services Unit Revenues SNI, Europe



Source: SNI

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Research Bulletin

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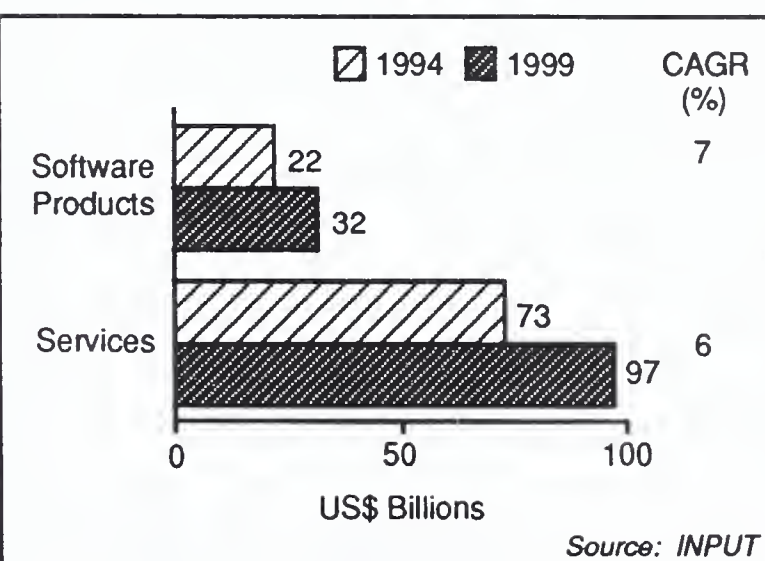
September 1994

Software and Services in Europe — First Signs of Recovery

Much of Europe is emerging from the grip of recession driven by strong exports, particularly in Germany. Software and services vendors report some revival in demand during the first half of 1994. These are the first signs that growth in the information services market has started to increase. The recovery appears to be moving in a wave from north to south.

Exhibit 1

Similar Growth Forecast for Software Products and for Services-Europe



The five-year forecast for the information services market (covering software, services and maintenance) is that it will grow from \$95 billion in 1994 to \$129 billion in 1999, a CAGR of 6%. The comparable growth in 1994 is predicted at 4%. Both these figures include an allowance for inflation.

Exhibit 1 compares the predicted markets for *software products* against all other types of *information service*. Such low growth hides considerable turmoil in the market as mainframe computing slowly decays, desktop systems become networked, software products become strategic platforms and applications become the primary purchasing criteria.

Key drivers of change in the market are:

- Pressures to reduce risks are generating strong user preferences for software product-based solutions rather than custom software developments
- Re-engineered business operations are increasing demand for service vendors

who can help interpret business needs and manage the specification, integration or operation of processes and systems

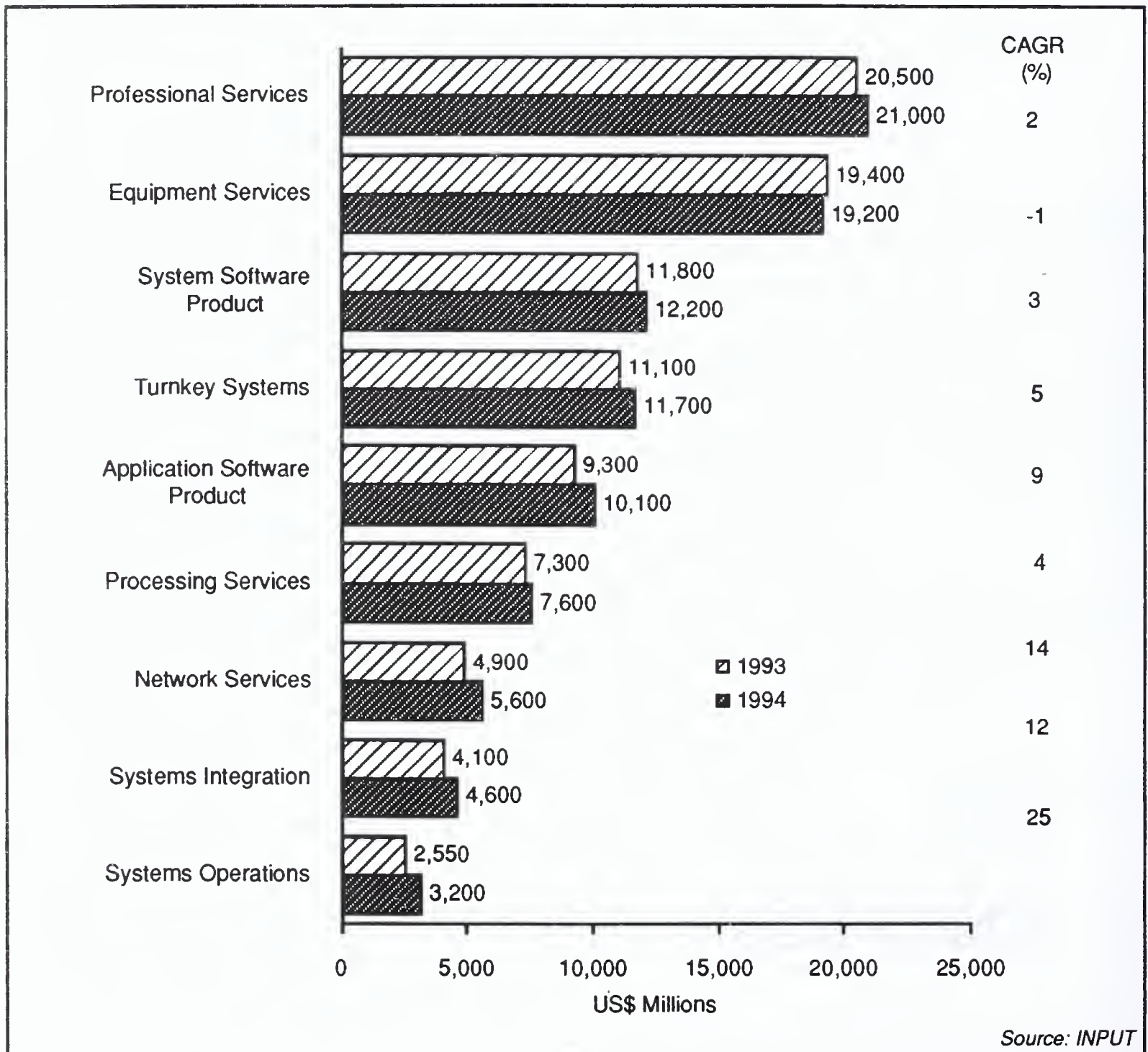
- High product reliability is causing the equipment maintenance market to shrink and customer service vendors

Exhibit 2

are diversifying into other delivery modes.

Exhibit 2 shows growth expectations during 1994 across each delivery mode. Exhibit 3 gives INPUT's forecast for the next five years for a comparison between the short term and long term.

Information Services Market—Europe 4% Overall Growth in 1994



Preference for packaged software solutions reduces custom development

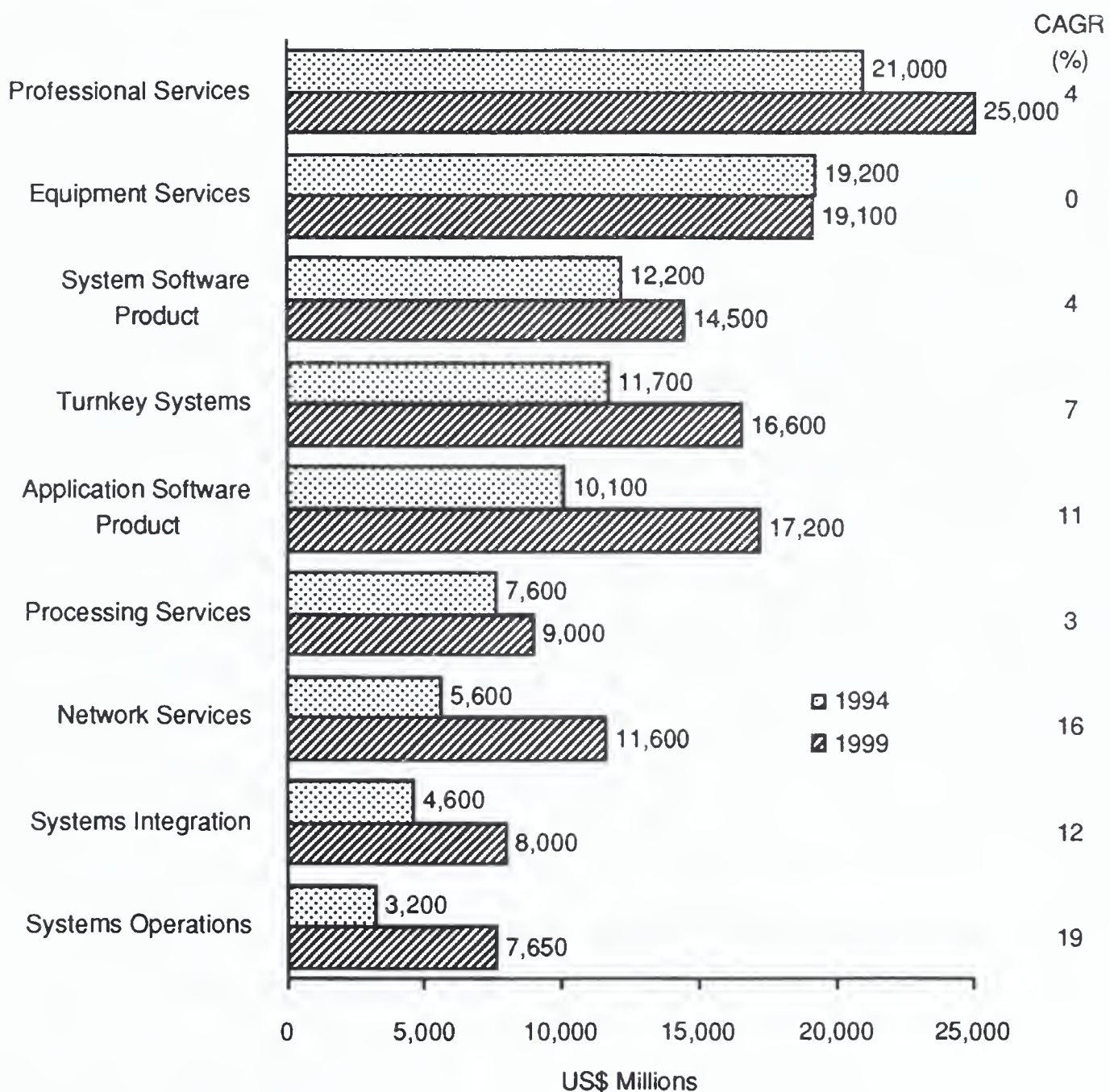
The professional services sector includes custom software development (project-based), contract staffing (skills-based) and a broad range of analysis, integration and implementation work. Many vendors in Europe are

Exhibit 3

experiencing a rapid change in the profile of this business as demand for applications programming falls.

New professional services, more business oriented or more technically complex, are expected to replace traditional application software writing, resulting in a near static market overall.

Information Services Market—Europe 6% CAGR to 1999



Source: INPUT

Spending in the systems software product market is closely tied to hardware spending, except for database management systems, client/server tools and systems performance utilities. The market leaders in applications software products are gaining market share with a firm focus from the traditional vendors on penetrating the open server market. E.g., SAP's R/3, and Oracle's Financials.

Outlook still good for systems integration and systems operations

Recession has moderated the growth of systems integration well below previous forecasts. But the market still offers plenty of opportunity as the use of standard products grows and technical complexity remains a barrier for in-house IS teams.

The outsourcing market improves as financial business pressures result in actions to reduce IS costs. Political trends towards privatization and deregulation in Europe are also creating new opportunities for outsourcing vendors.

Demand is increasing for vendors to take on the complete operational management of desktop systems. The complexity of managing the resources surrounding hundreds of desktops seems to increase exponentially.

Similar pressures apply to network services. Though vendors face strong network price competition, growth in electronic information services is up on last year.

IT-related outsourcing of business operations is growing. In the UK the

government is testing the viability of contracting out many in-house functions.

Maintenance services market shrinkage encourages diversification

The market for equipment maintenance is falling. High product reliability and cost-cutting to downgraded service contracts is reducing the overall expenditure on maintenance.

Customer service vendors are extending their initiatives on multi-vendor contracts for sites or whole enterprises. This reflects a new focus on services for supporting a system, or set of users, rather than fixing a broken product.

Third-party maintenance vendors (TPMs) are facing stiff competition from equipment vendors offering multi-vendor services.

Professional services vendors are undergoing a transformation

The information services market, including all the delivery modes shown in Exhibits 2 and 3, is undergoing a major transformation.

The independent professional service vendors are experiencing the most difficulty. The basis of their past success has been the successful development of software for customers. As this demand shrinks they have to respond to the new needs of clients in services which require knowledge of the clients' business and services which require expertise in the latest software technology.

Vendors in northern Europe, who have become slimmer and fitter during three years of recession, are returning to

profitability as the economic outlook improves. These first signs of economic recovery in the information services industry could well result in an increase

in cross-border acquisitions as many vendors reinstate their goal of seeking international growth.

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Research Bulletin

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November 1994

Information Services, Vendors Face Severe Competition in Europe's Largest Market

France is the largest European market for software, services and maintenance, but recently it has not been an easy market for French vendors. The recession and the switch in demand from custom to standard software caught some vendors unprepared or slow to respond to competitors.

INPUT expects relatively small improvements in market demand over the next five years in Europe. As a result, there is likely to be further restructuring, especially among the French vendors as they position themselves to improve profitability and meet new customer demands.

The four major countries, Germany, France, Italy and the United Kingdom, currently share 70% of the total European market for information services (see Exhibit 1), up from 69% in 1992.

The information services market is the combined total of expenditures in the INPUT-defined delivery modes listed here:

- Professional services
- Systems integration
- Systems operations
- Processing services
- Network services
- Systems software products
- Applications software products
- Turnkey systems

Exhibit 1

Top Four Countries Fill 70% of Information Services Market, Europe

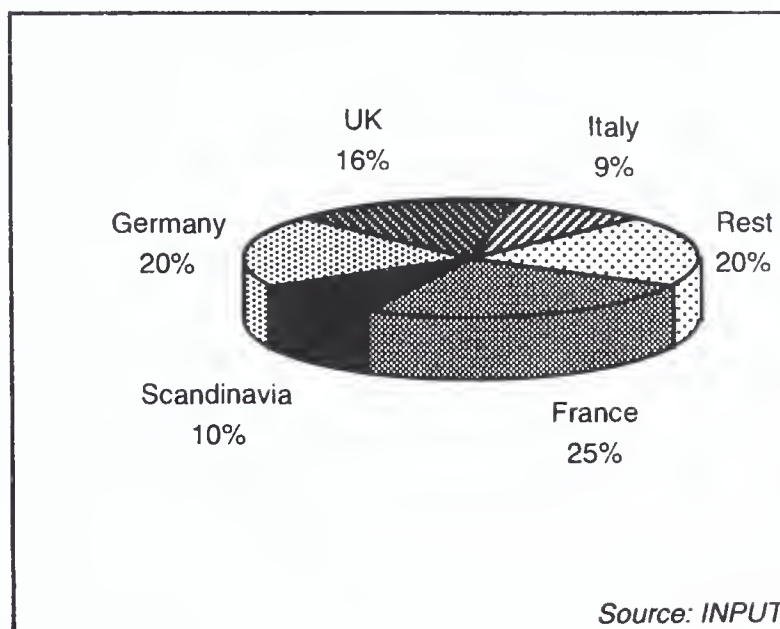
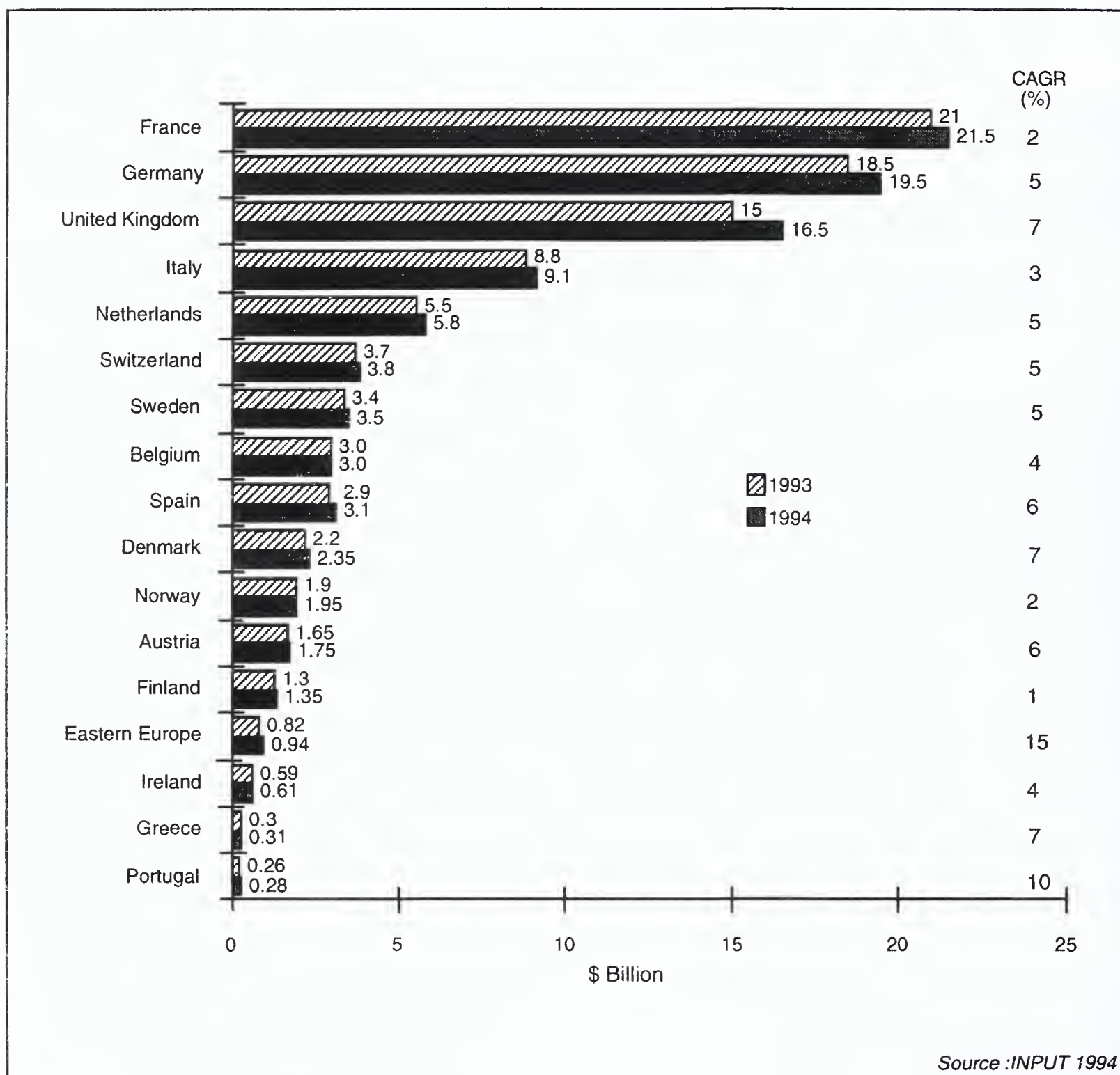


Exhibit 2

European Information Services Market, 4% Overall Growth in 1994



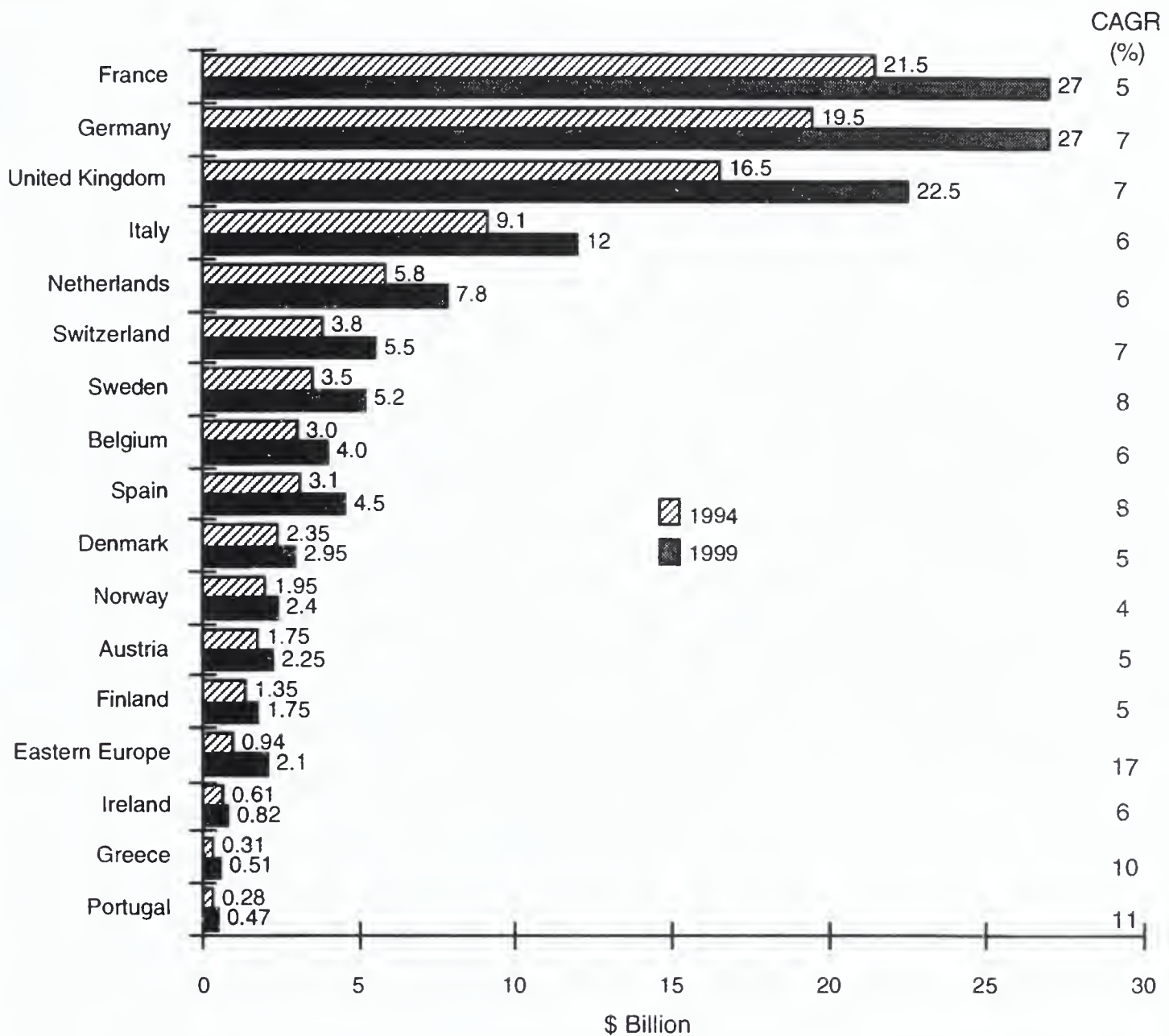
Note: Excludes equipment services

Exhibit 2 shows the anticipated growth for the market in each country during 1994.

Exhibit 3 charts the forecast for each country over the next five years to 1999.

Exhibit 3

Information Services Market, Europe, 8% Overall Growth 1994-1999



Source :INPUT 1994

Note: Excludes equipment services

The five-year forecast for the information services market (covering software, services and maintenance) is that it will grow from \$95 billion in 1994 to \$129 billion in 1999, a CAGR of 6%. The comparable growth in 1994 is predicted at 4%. Both these figures include inflation.

Investment in information services across Europe does not mirror the GDP profile of each country. For example, the GDP of Germany is around one third higher than that of France, but spending on software and services is 20% higher in France than in Germany. Similarly, Italy has a larger GDP than the UK but the UK market for

software and services is nearly double that of Italy.

Vendors emerge from recession lighter and fitter

Vendors in Sweden, Finland and the UK have been fighting for survival in a period of recession for some two and a half years. As economic recovery proceeds the surviving vendors have emerged lighter and fitter, more capable of meeting rapid changes in market demand and competition.

Among European vendors, the French have been the most successful in expanding beyond their own national boundaries. Cap Gemini Sogeti, Sema and GSI have all established strong international businesses. However the result of recession and rapid changes in user needs have left many French vendors lagging behind their competitors from elsewhere in Europe.

Weaker French vendors will need further restructuring. For individual vendors this is likely to take the form of:

- Re-organising to establish more software product-related skills and services
- Reducing staff in the area of applications software development
- Replacing or re-skilling staff in new software and systems engineering
- Seeking new sources of funding for business development.

As the recession lifts in France, local vendors will find that they face stronger competition from other lighter and fitter European vendors looking to establish themselves as international firms.

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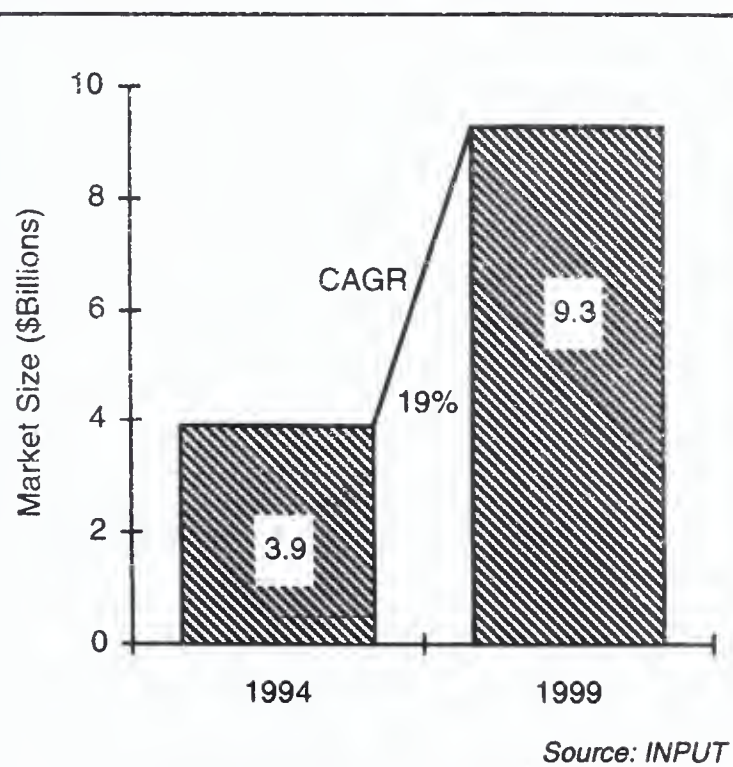
November 1994

Operational Outsourcing Services Extend Scope

The market for operational outsourcing services in Europe continues to grow rapidly in contrast to overall user expenditure on IT. Exhibit 1 shows the overall forecast for the European IS outsourcing market.

Exhibit 1

European IS Outsourcing Market



Historically, this growth has come primarily from mainframe data centre management.

Now the emphasis is beginning to change, two major trends stand out:

- Movement towards management of the wider IT infrastructure, particularly of the desktop in client/server computing environments
- Future emphasis from an exclusively IT focus to a wider business operations perspective

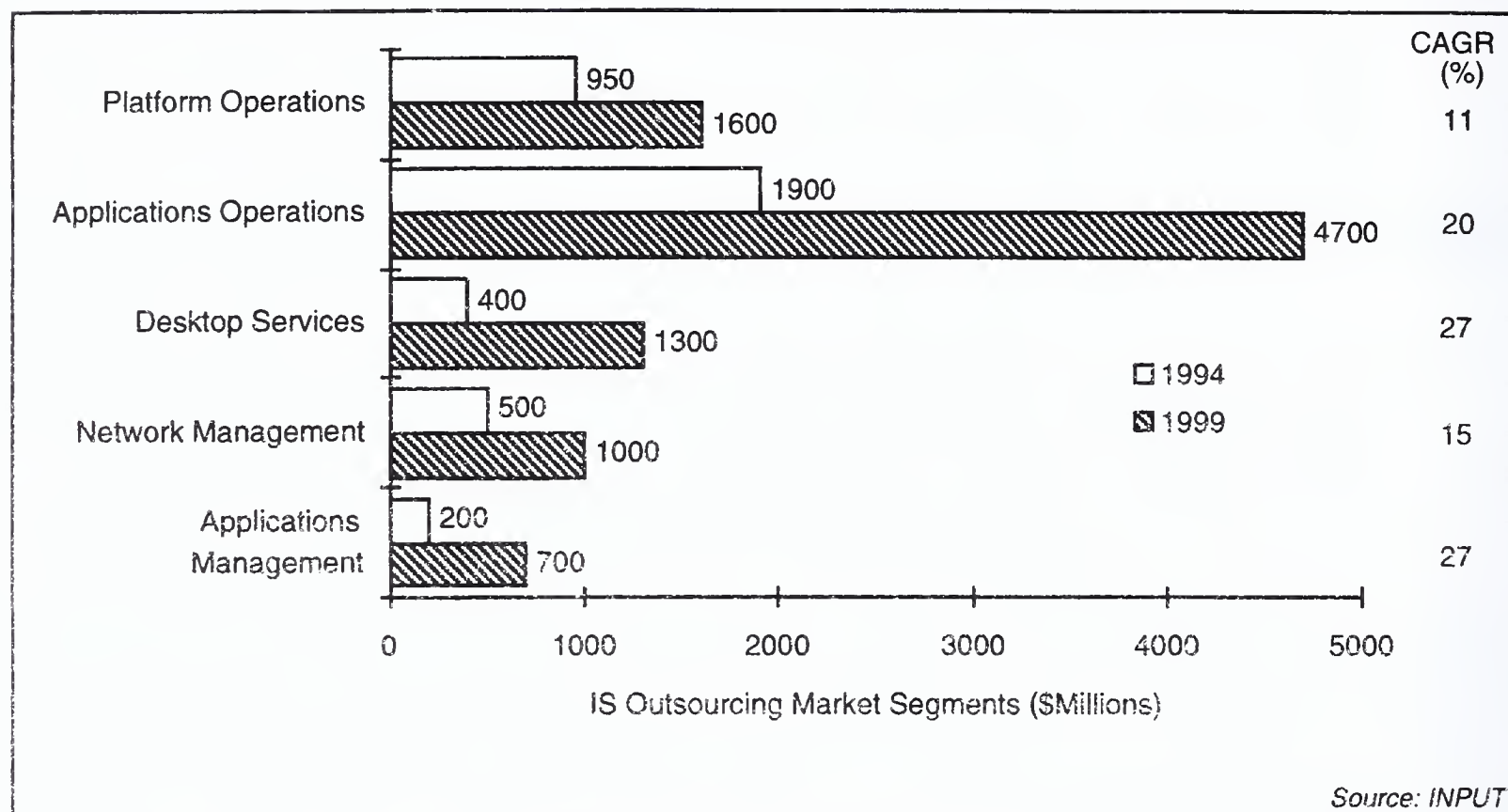
Overall, these changes reflect a change from a cost reduction focus to that of improved applications of IT in support of wider business development aims.

Managing the IT Infrastructure

SAP outsourcing in Germany is an example of a shift towards a wider scope for outsourcing contracts. The nature of the SAP outsourcing opportunity is changing from the supply of mainframe-based processing services for medium-sized organisations to services based on assisting organisations in managing the transition from R/2 to R/3 and the management of client/server based architectures.

Exhibit 2

IS Outsourcing Market Segments, Europe 1994-1999



The growth in the European IS outsourcing market segments is shown in Exhibit 2.

Growth in the platform operations segment of the market is forecast to decline over the next five years. However, the overall high growth in IS outsourcing will be maintained by high growth in applications operations and by the emergence of desktop services and applications management.

These latter two market segments are critical in assisting organisations make the transition from mainframe-based architectures to client/server based IT infrastructures.

A large component of the European outsourcing market has traditionally been focused on assisting organisations make the transition from a mainframe-centred IT infrastructure to a more distributed environment. At first, the new environment was often based on stand-alone mid-range equipment such as IBM AS/400s. Nowadays, organisations are increasingly moving

towards a client/server architecture, and placing more emphasis on desktop computing. However, while clients have in the past wanted vendors to take over the management of the mainframes being phased out, they have traditionally been more reluctant to entrust the management of their new IT environments to external vendors.

This is now beginning to change as organisations begin to appreciate the complexity of managing their new infrastructures. As a result, many organisations that have already outsourced the operation of their mainframe datacentres now seek vendors to manage their distributed systems and desktop environments. In addition, other organisations are independently outsourcing the operation of their client/server and desktop infrastructures.

This is creating opportunities for vendors without mainframe platform operations skills who previously found it difficult to address the

outsourcing market. Vendors with predominantly Unix-based systems management and desktop services capabilities include Digital, Hewlett-Packard, the major PC dealers such as P&P and those represented by the International Computer Group. Indeed the European desktop services market is becoming very competitive as the majority of the traditional outsourcing vendors are joined by new entrants such as the major PC dealers and third-party maintenance organisations.

However, infrastructure outsourcing deals with major organisations involving a major element of mainframe datacentre outsourcing, will still be dominated by the economics of datacentre outsourcing. Clients will tend to favour vendors who have significant mainframe outsourcing capability in-house rather than vendors with extensive client/server and desktop management capability who may need to use partners for access to datacentre operations capability.

Vendors who have established a comprehensive IT infrastructure capability include Hoskyns, debis Systemhaus, and SHL Systemhouse. Those with predominantly mainframe datacentre capability include IBM, EDS, and CSC. Although EDS has established its Technical Products Division (TPD) in Europe to serve the desktop services market, TPD has a greater emphasis on product distribution than on true outsourcing services such as LAN management.

Cap Gemini Sogeti is increasingly focusing on services that support organisations in making the transition between mainframe and client/server architectures, such as applications management and desktop services.

Growing Emphasis on Business Operations

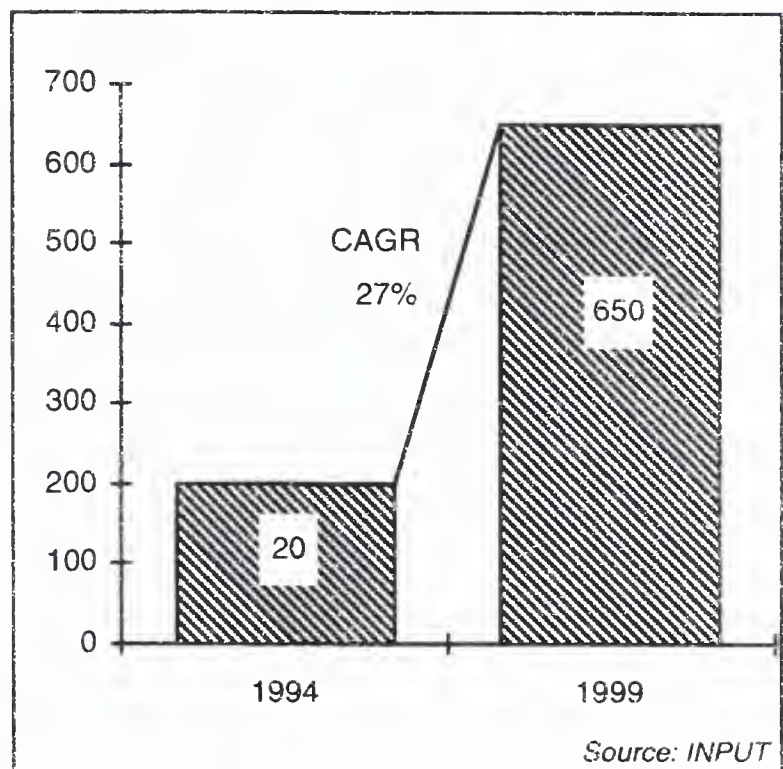
In addition to seeking cost reduction, the majority of organisations that have adopted IT outsourcing wish to use IT pro-actively and require an improvement in the application of IT to their business.

Other vendors are going beyond IT outsourcing and focusing on business operations contracts.

The forecast for business operations is shown in Exhibit 3.

Exhibit 3

Business Operations Market, Europe 1994-1999



Many of the vendors targeting the UK local government sector such as ITnet and Data Sciences developed managed services capability during 1993. Indeed, the UK public sector is forecast to be the major business operations market in Europe over the next five years.

However, significant opportunities in areas such as billing and customer support are expected to emerge in the private sector.

For example, Andersen Consulting takes comparatively little interest in the mainstream IT outsourcing market, but has already been successful in developing a business to manage the accounting functions of a number of North Sea oil companies. Historically, the company tended to become involved in transition outsourcing in support of major systems integration projects.

EDS has also begun to target the business operations sector in Europe. The company has contracts with two municipal authorities for parking fine collection and with Time Life for its fulfilment function to English speaking countries.

The business operations market in Europe will continue to develop, driven by Compulsory Competitive Tendering in UK local government and by the desire to reengineer high-cost, labour-intensive business processes.

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Research Bulletin

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Outsourcing Vendors Focus on Industry Sectors and Geographic Expansion

Historically, outsourcing services have been largely provided on a cross-industry basis. However, although industry focus remains a comparatively minor positioning factor in the European outsourcing market this situation is likely to change in the future.

Outsourcing decisions are becoming more easily influenced by business reengineering and business process management. Consequently industry, process and application specific focus will emerge much more strongly in this market.

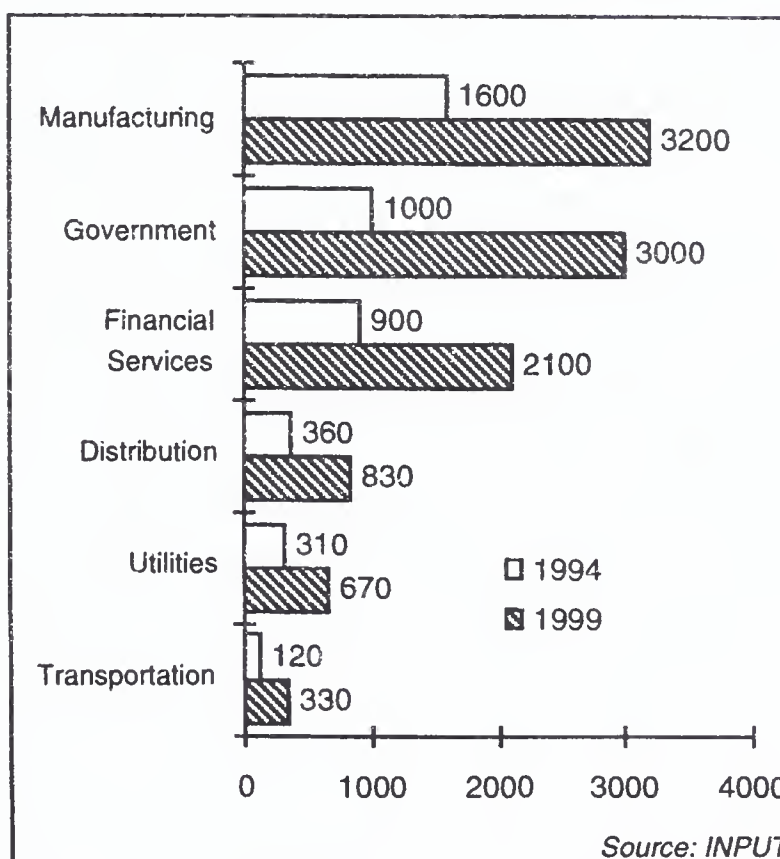
Additionally, vendors are increasing their geographic coverage in Europe and thus can benefit from the use of cross-country industry reference sales.

Industry Focus will become more Important

Currently, the manufacturing sector remains the major market for outsourcing in Europe. A breakdown of the European outsourcing market by industry sector is shown in Exhibit 1.

Exhibit 1

Industry Sector Forecast (\$M),
Europe 1994-1999



The manufacturing sector will continue to be an important source of outsourcing revenues in Europe.

This sector is particularly important in Germany and is becoming of increasing importance in the emerging Italian outsourcing market.

However, the public sector is becoming an area of growing interest to many vendors. EDS has established itself as the most successful vendor in targeting outsourcing within UK central government, and other vendors such as ICL/CFM and the Capita Group have achieved considerable revenue growth by specialising in the UK local government sector.

Outsourcing growth will be rapid in both local and central government in the UK over the next three years at least. This trend is likely to transfer to other major national markets during the course of the current forecast period, as other governments seek to reduce the cost of administration to their taxpayers.

Specialist processing services vendors, such as Sligos and Axime, are targeting the banking sector in France. These vendors will endeavour to extend their processing services offerings into business operations for the financial services sector. In addition, the medium-sized financial institutions in Germany and Italy are serious candidates for systems operations services.

Although the major banks in the UK have been slow to adopt systems operations, they are one of the leading sectors in the adoption of desktop services and applications management.

Growth in IS outsourcing in the utilities sector in the UK will slow down as these organisations come to the end of their restructuring programmes following privatisation. However, there are prospects of privatisation in the utilities sector in Germany creating opportunities for outsourcing vendors there.

Leading Vendors Continue Geographic Expansion

Vendors are increasing their geographic coverage of the outsourcing market and many of the leading vendors are still seeking acquisitions or joint ventures to develop their market presence. Furthermore, following the success of vendors such as EDS and CSC, other North American outsourcing vendors are actively evaluating the potential of the European market, and a number of these vendors can be expected to enter the market soon.

The maturity of the outsourcing market varies widely between countries in Europe. The proportions of the market accounted for by each of the major regional markets is listed in Exhibit 2.

Exhibit 2

Regional Outsourcing Markets, Europe 1994-1999

Region	Market Size (\$M)	Proportion of European Market (%)
Europe	3900	100
UK	1400	35
France	950	24
Germany	400	10
Scandinavia	370	9
Italy	300	8
Benelux	280	7
Rest of Europe	200	6

Source: INPUT

The most developed outsourcing markets in Europe remain in the UK and France. The Scandinavian market is also well-developed in terms of service development and leading

vendor presence but is a significantly smaller market than those in the UK and France.

The German, Italian and Belgian outsourcing markets are less well developed but are catching up with the major European outsourcing markets as the leading vendors begin to transfer outsourcing expertise into these areas.

The leading five vendors in terms of European outsourcing revenues in 1993 are listed in Exhibit 3.

Exhibit 3

Leading Outsourcing Vendors, Europe 1993

Vendor	Estimated Revenues \$m	Market Share (%)
EDS	410	12
Cap Gemini Sogeti	275	8
IBM ISSC	150	5
Digital	140	4
ICL/CFM	125	4

Source: INPUT

EDS was very successful in Europe in 1992 and 1993 winning the KF contract in Scandinavia and the Inland Revenue contract in the UK. The company has also established

itself as one of the market leaders in Germany, and is now entering the Italian outsourcing market following its acquisition of S&M Group.

Overall, the major US vendors have dominated the major outsourcing contracts in Europe, with both CSC and Perot Systems winning several major deals. These vendors are winning contracts both by virtue of their business reengineering skills, for example the Europcar, KF and BhS (British Home Stores) contracts, and by virtue of their size, for example the Inland Revenue and British Aerospace contracts. From the client's perspective, it is primarily the size of the prospective vendor's outsourcing operation and the size of their existing contracts that are important, not the overall vendor revenues. Because outsourcing deals tend to be smaller, and for shorter periods, in Europe than in the US, the major US-based vendors have a significant advantage in targeting contracts valued in excess of \$100 million. Accordingly, vendors such as EDS and Perot Systems tend to focus on the larger contracts, while most of the European vendors continue to concentrate on contracts in the \$2 million to \$50 million range.

IBM ISSC has been less successful in targeting these major contracts but has built up an enviable position in the manufacturing sector in France and Germany.

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Research Bulletin

A Publication from INPUT's U.S. Information Services Market Analysis Program

Vol. V, No. 10

December 1994

The New Realities of the Information Services Business

Following widespread economic recession across Europe in the early 1990s national government statistics have reported a return to growth in most of the countries of Western Europe.

However, IT industry executives and managers continue to experience highly demanding competitive conditions. They experience increasingly demanding clients and numerous competitors for the services and products they offer.

These *new realities* impact the information services market and require vendors to reassess their overall environment within which they must operate. Reviewed below are:

- Overall expectations for growth in user expenditure on information technology and information services

- Technology development whirlwinds and their impact on information services
- The dramatically different economic environment which will affect user expectations and actions.

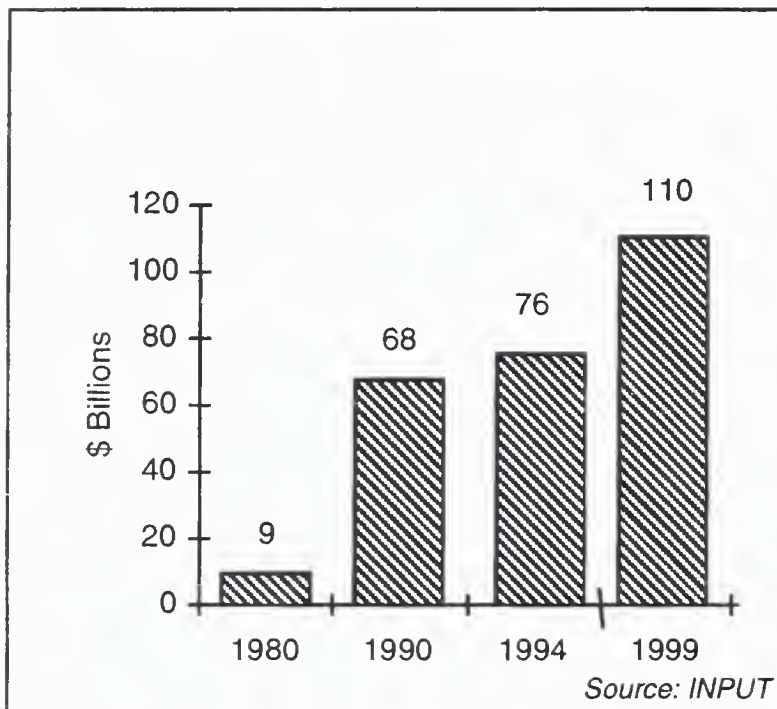
The Change to a Low Growth Scenario for Information Services

The information services (software and services) industry has experienced a consistent history of high growth. Exhibit 1 shows that in the decade up to 1990 the industry grew by over 7 times in size and averaged in excess of 22% growth per annum.

Given money inflation averaging around 5% per annum throughout this period this still represents significant real growth in user expenditure on information services.

Exhibit 1

European Information Services 1980-1999



However, the first part of the current decade has ushered in a period of significantly lower growth. In the period up to 1994 INPUT has measured only 3% overall growth per annum in user expenditure on information services.

The major economies of Europe are emerging from recession but this changed economic scenario has not returned the industry to a high growth scenario.

Further, expectations of future market growth have been reduced to a rate of 8% per annum for the remainder of the decade.

Economic growth has not translated into boom conditions in the IT market as organisations adjust to a world of *deflation* rather than *inflation*.

Consequently the realisation that the lowered growth expectations of the industry may be attributable to structural factors other than economic recession is now beginning to emerge as an important consideration.

The fact is that the information services industry is now being faced with a completely new set of circumstances with which to come to terms. The 1990s have ushered in an era in which high growth and ever expanding use of IT are being questioned.

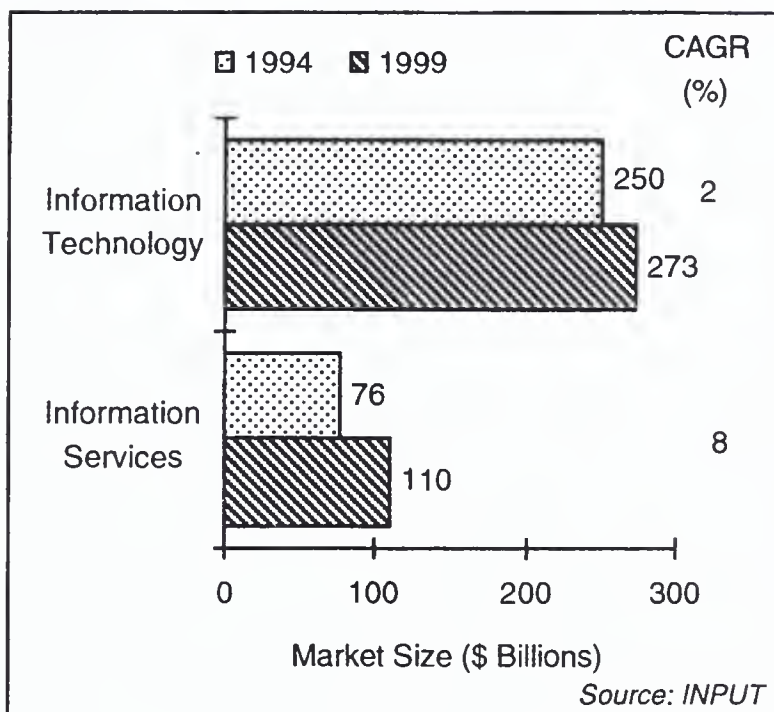
Naturally there remain many high growth sectors within the overall expectation of services growth. It is thus becoming much more important for vendors to be selective in their approach to the market. The easy market conditions of the former times no longer apply.

Nevertheless, information services generally still represents an overall higher growth opportunity than other IT markets. This is shown in Exhibit 2 which contrasts forecast growth in information services with that of the total expected market growth for all IT expenditure.

Information services are expected to account for more than the total additive amount for all expenditure (\$35 v 25 million) over the forecast period.

This is a manifestation of the deflation impact, lower prices for both hardware and software products, and the continuing switch by users from in-house expenditure to the use of outside services.

Exhibit 2

European IT Vs. IS Expenditures**The Impact of the Technology Whirlwinds on Information Services**

The last fifty years of IT development has been characterised by unprecedented progress, which for hardware appears to be accelerating.

However, the development of software has not progressed at the same rate. It becomes increasingly apparent that many problems in the IT industry stem from the mistaken view that software is a tangible entity to which the rules that apply to tangible products can be applied.

Difficulties in developing complex software products and implementing complex systems stem from this misconception. The special requirements of software development and implementation create opportunities for services firms that fully understand the true nature of the software development and implementation challenge.

Another important trend has been the convergence of computers, telephony and consumer electronics based on digital technology and away from analogue technology.

One of the most interesting aspects of these developments has been the ascendancy of consumer markets for high-technology products as one of the most important driving forces for new development.

Fifty years ago leading edge high technology development was often the preserve of the defence industries driven by the requirements and big budget resources of the military establishments.

Subsequently business needs and the search for competitive advantage from IT, particularly from large corporations, became the market drivers throughout the 1970s and 1980s.

Now in the 1990s consumer demand appears to have assumed a key role, certainly in terms of hardware systems like multimedia PCs and colour graphics screens for games.

There exist lags in the development of various types of services markets as different categories of users take up the new technology.

Support for products, maintenance, bug resolution and technical assistance are required very early on in the life of a product even for the most sophisticated technically oriented users.

Services that help users gain benefit from using products, for example installation and implementation assistance, training and consultancy services are required to attract a wider range of users into the market.

Solutions which focus on the delivery of specific business functions and thus remove many, if not all, of the technological barriers to use, are required to bring in the non-technology oriented users.

Undoubtedly the technology that is currently having the most significant impact on the market is that of client/server computing. This technology illustrates the lag effect in respect of services, since it is only in the last couple of years that client/server computing has begun to make a major impact on services markets despite the fact that the technology itself has been available in a number of forms for some time.

One can also observe that the *hot* technologies of multimedia, the information super highway and such developments as object oriented programming have as yet had little impact on services. Their use remains restricted to early adopters of the technology who in general supply their own technical services and create their own solutions.

Adjusting to a Deflationary Environment

The single most important economic change that is affecting the business environment within which information services vendors must sell their services and products is the shift from a world of inflationary to one of deflation ion .

Few economic observers or organisations, including Governments, have given any indication that they even accept this prognosis let alone made the necessary adjustments which it will demand.

The continuing obsession on the part of governments and other official bodies such as the OECD with inflation cannot be dismissed lightly. However, evidence piles up daily, in

economic reports and the evidence of price cuts and discounting in numerous sectors of the economy, that deflation is the order of the day.

This is particularly true of the IT industry which was leading with technology driven price performance and quality improvement long before similar trends began affecting other industry sectors.

Information services vendors face a world in which prices can no longer be put up to cover increased cost of inputs whenever these occur in the system. Vendors face demanding customers and a multiplicity of competitors bidding for the available business. Information services markets, like those of their clients, are typified by oversupply and intense pricing and cost pressures.

This whole phenomena can be summed up under the expression 'The Lopez impact', which is summarised in Exhibit 3.

Exhibit 3

The Lopez Impact

WAS
$\text{Costs} + \text{Profit} = \text{Selling Price}$
NOW
$\text{Market Price} - \text{profit} = \text{Cost Budget}$

Source: INPUT

The *Lopez impact* is named after Volkswagen's controversial purchasing czar. Lopez has strongly publicised a new paradigm for firms that emphasise that they cannot any longer determine, in a world of massive over supply, the market price of the goods or services that are provided.

Massive oversupply and consequently keen competition ensure that the market determines the price at which these products and services can be sold. It then becomes a requirement that the producer deliver at a price and cost level that will also result in a reasonable profit.

Businesses are thus under immense pressure to cut cost from their operations. It is within

this context that an organisation's need to reengineer or at the very least downsize, can be clearly understood.

Information services vendors need to adjust their thinking and their planning to these new realities of economic life.

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Research Bulletin

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Changing Service and Support Requirements

As new types of technology products, notably PCs and client/server computing, gain widespread acceptance in the market so they drive the requirements for new types of services and new skills to deliver them.

Three of the most important trends that are affecting the required services and skills mix are examined below:

- The development of an open market for software product support
- The network-centric nature of future customer support and service needs
- The increasing congruence of IT and business process requirements.

Software Support Enters the Open Market

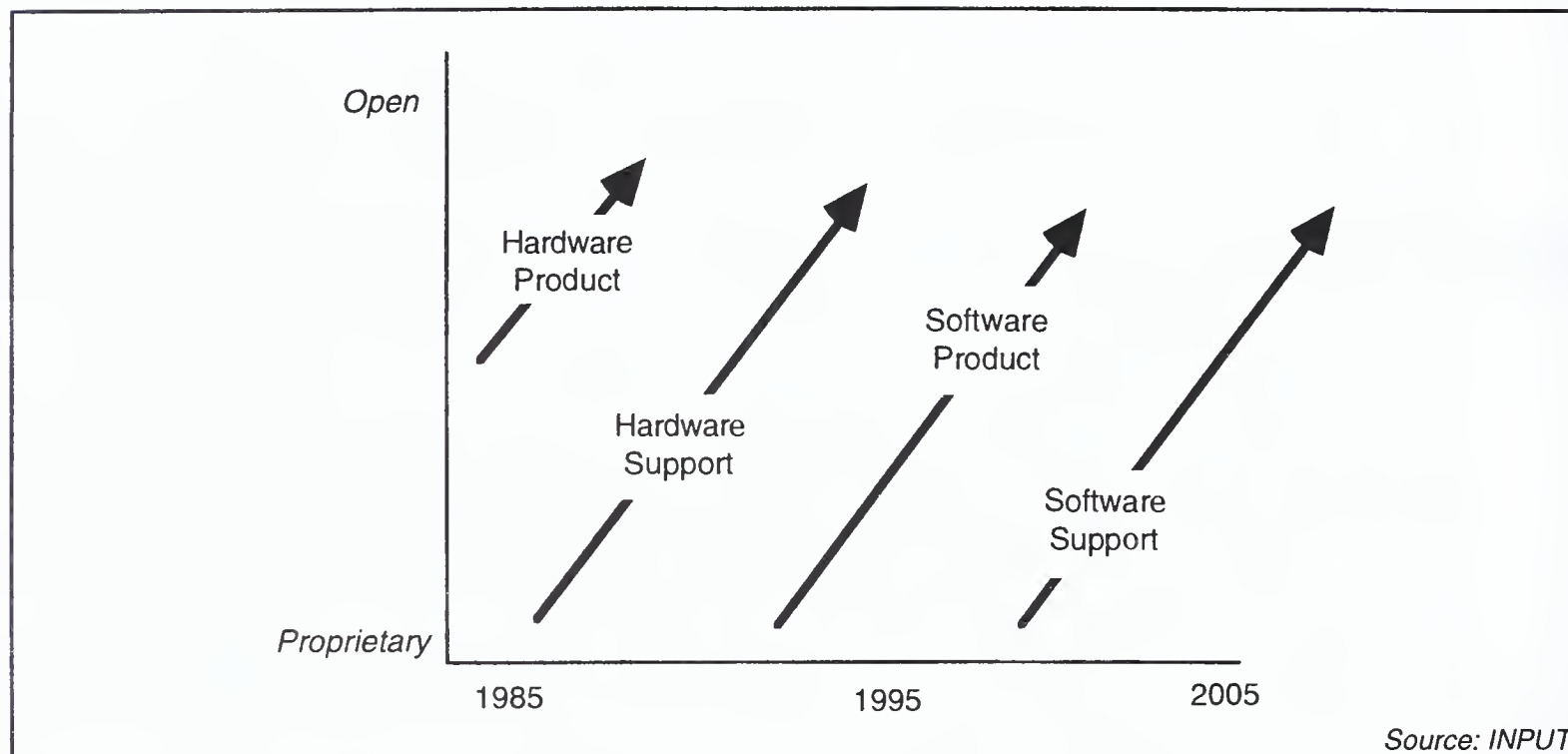
The software products market has grown rapidly over the last fifteen years and has consequently become a key area of focus for many vendors.

At the same time the software product market has changed from being almost exclusively technology driven to one in which customer demand and customer acceptance are the dominant influences.

It now needs to be recognised that software product support is emerging as a clearly identifiable market with *open* characteristics just as hardware markets before have also succumbed to the same competitive and customer pressures. This process is illustrated graphically in Exhibit 1.

Exhibit 1

Software Support Enters the Open Market



In the past there existed a direct relationship between the vendor and the customer. Now the customer's system tends to be built up from a multiplicity of sources, potentially each element requiring support from a different source.

In the proprietary world that dominated the early decades of the IT industry customers paid for conflict resolution in the product price. The vendor integrated the necessary hardware and software components into a working system.

The world of *open systems* and its highly competitive environment and low prices has however shifted the integration burden onto the customer. Customers now pay for conflict resolution in the services that they need for implementing the user's desired solution.

The size of the available opportunities in Europe are indicated in Exhibit 2. In addition to the market for direct product support is also indicated the opportunity for services associated with products.

Exhibit 2

European Software Markets

	Market Size (\$B)	
	1994	1999
Software product sales	22.3	31.7
Software product support	2.9	4.3
Software product-related services	4.0	6.5
Total	29.2	42.5

Source: INPUT

Recent INPUT user research has indicated a significant level of dissatisfaction with the support currently being offered by many vendors and this is frequently expressed as a perception of lack of value for money for the services provided.

Vendors seeking to exploit future software product support opportunities, particularly those generated by desktop users, should focus their support and service capabilities around the following principles:

- Support oriented to user needs not specific products
- A recognition of a multiplicity of different user requirements
- Application of technology support, e.g. bulletin boards, for the provision of support.

Network Support Requirements Set to Dominate User Needs

The continuing acceptance of local area networks (LANs), and the growing

importance of the desktop domain, are changing the dynamics of the information services market.

Whereas support and service needs tended to be based on a centralised computing paradigm, now those needs have spread and diversified throughout the organisation.

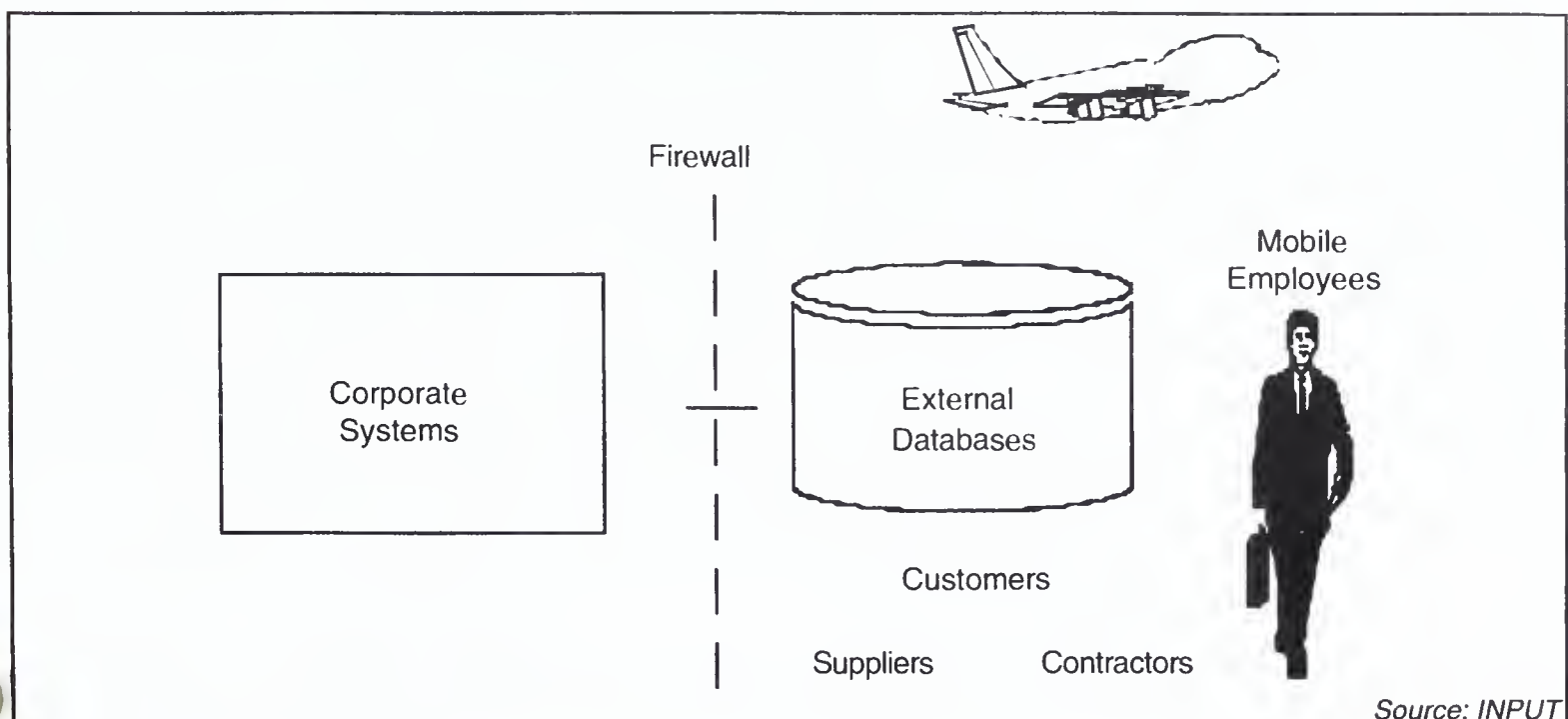
Most corporate network infrastructures are characterised by their lack of coherence and integration. In many cases individual business units have implemented their own local networks which have operated independently of one another.

There is now increasing pressure to integrate these networks on an enterprise-wide scale in order to fully leverage their potential business benefits.

Exhibit 3 indicates in graphic form another major challenge facing organisations, the need to develop inter-enterprise networking as well as intra-enterprise connectivity.

Exhibit 3

Reengineering Enterprise Systems



The most important manifestation of this trend is the rapidly expanding use of the Internet and its development for commercial applications.

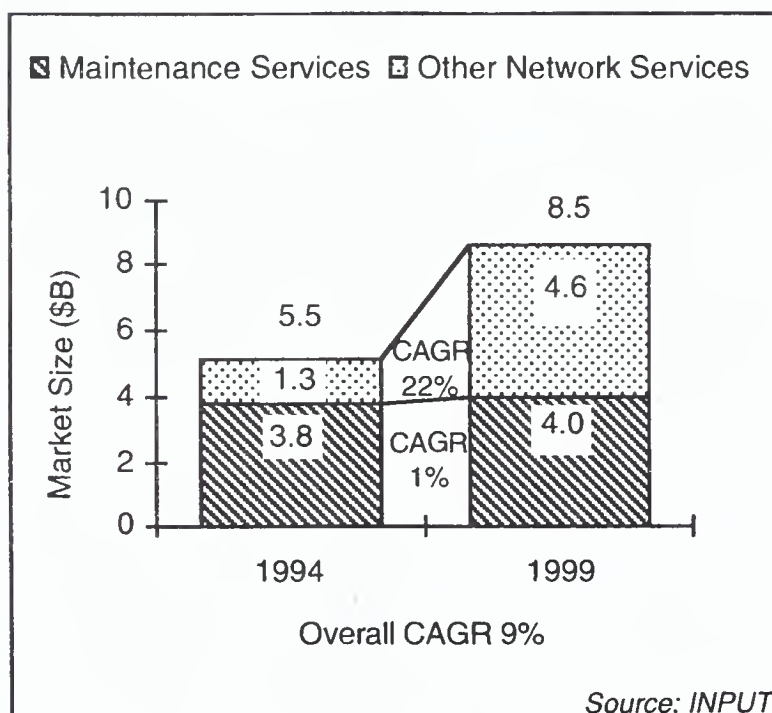
One of the major challenges faced by organisations in this environment is the maintenance of the security and integrity of their data.

Another aspect is the need to appeal to varying levels of customer support and service need. A variety of users will require support, all with different personal requirements as referred to above under software support requirements.

Consequently a fast developing opportunity is now emerging for the outsourcing of these functions, see Exhibit 4

Exhibit 4

Desktop Network Services — Europe



The major growth opportunities lie in the non-product support sectors, for example in the provision of :

- Full network outsourcing
- Network management and monitoring services
- Business continuity services
- Help-desk support services.

The inherent complexity of the network environment is driving the need for the application of new skills and capabilities, many needing to be delivered remotely.

Successful vendors will need to continuously refresh and develop their skill bases and seek strategic agreements with other vendors to obtain access to otherwise unavailable or complementary skill sets.

Careful long range planning will also be required in an environment in which the time to develop real in-depth skills is lengthening and is measured in years not months.

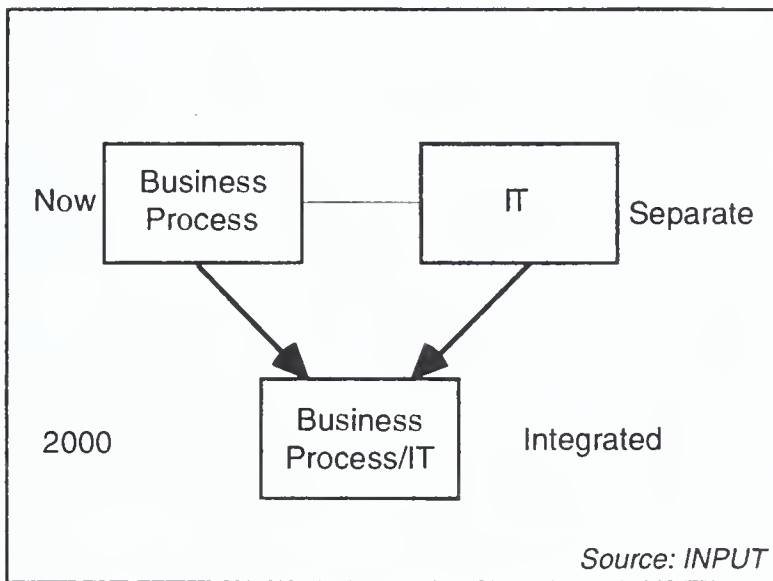
The Integration of IT and Business Processes

One of the most important trends in the development of the services business that will affect the development of new services and new skill requirements is the tendency for IT services to become more and more integrated within the business processes that they serve.

This concept is illustrated graphically in Exhibit 5.

Exhibit 5

Integration of IT and Business Processes



This trend first became of major significance in outsourcing contracts where the vendor was contracted to provide a service defined largely or exclusively in business terms rather than in IT terms, these are defined as business operations. That have been precedents in processing services for such activities as payroll processing and the factoring of invoices.

The first major business operations contract in Europe was between BP Exploration and Andersen Consulting in 1991.

Subsequently this phenomena has manifested itself in numerous other contracts, notably in EDS's KF contract. However, it also manifests

itself at all levels of services contracting as an increased requirement for the vendor to demonstrate industry understanding and knowledge.

This trend is likely to accelerate as the idea of outsourcing non-core processes gains wider acceptance. Organisations' business processes will become separated into core and non-core processes.

Core processes will become the focus of intermittent reengineering efforts. They are therefore likely to require the assistance of a partner with considerable expertise, and preferably world-class practice, in the relevant business process.

Ideally this business process expertise needs to be developed across a range of different industries in order to optimise the likelihood of achieving innovative approaches to the business problem.

Vendors will therefore need to establish skills in business process areas like customer systems, supply chain management and document workflow where hitherto they may have defined their skills in terms of, for example, accounting systems or a payroll package.

Clearly there exists a need for the integration of IT skills and business skills both in terms of the operational and development aspects of the customers' business processes.

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Research Bulletin

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Vol. V, No. 12

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The Changing Structure of the Information Services Industry

The information services industry is undergoing a period of profound change driven not only by rapid development of the technologies which it supports but also by radical change amongst the customers it serves.

Just as individual vendors are facing the challenge of changing to match a new set of customer requirements, so also will the industry change its shape and form to match the new market realities.

Three important aspects of that industry change are likely to be:

- The change in categorisation of the principal activities that services firms will undertake
- The change in the relative size of firms and thus the shape of the industry in respect of its degree of concentration or fragmentation
- The relationships, i.e. the partnerships, alliances and cooperative agreements, that firms will need to develop with other industry participants in order to fulfil their customer commitments.

The Changing Categorisation of the Information Services Industry

Information services firms quickly established *independence* from proprietary system architectures as one of their major distinguishing characteristics, hence the use of the term *independents* to describe them and distinguish them from the dominant system vendors.

The development of technology, particularly in the PC and workstation arenas has hastened the stratification of the industry onto a horizontal inter-dependent model away from its original vertically integrated, proprietary architecture form.

We can expect this trend to intensify over the next few years with an increasing imperative to specialisation and the inter-dependence of firms required to deliver highly complex computer system based solutions to clients.

The commercial success of individual firms within the industry has often been the result of a clear focus on one particular aspect of software and service delivery.

For example Andersen Consulting in professional services management, EDS in the management of IT assets and the efficient delivery of services based upon them and Computer Associates in the marketing of software products.

However, the sheer complexity of computer systems has ensured that most firms, unless quite small, have become involved in a variety of different IT related services.

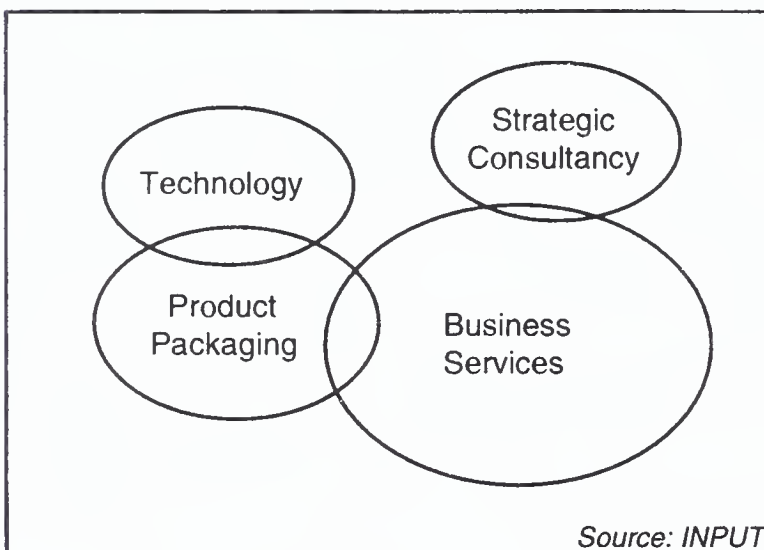
This is likely to become an increasing cause of problems for many firms in the future.

Two of the most likely areas for problems will be an exaggeration of the user's desire for complete solutions from one vendor and a failure to distinguish between technology development and services delivery.

Exhibit 1 provides a simplified view of the most likely polarisation of activity related to software and service delivery.

Exhibit 1

European Industry Reengineers



It can be anticipated that there will become a clearer distinction between these different types of firms in the future, but an increased interdependence between them.

Whilst some firms may be able to successfully combine a presence in more than one it is likely that this will prove increasingly difficult for most organisations without the presence of other special factors.

The drive of productisation and standardisation (openness) will force more and more software development away from the user site into the development factories of technology firms, both equipment dependent and independents.

Technology firms will fundamentally be concerned with the development of products and will, certainly in the case of software products, find it increasingly difficult to market their own products directly.

Packaging firms, and most systems vendors have fundamentally been packaging organisations for some time, are distinguished by their marketing skills, their ability to understand user needs and their control of distribution channels.

At the opposite pole from technology dominated organisations will exist those organisations fundamentally focused on the relationship between technology and its effective application.

These organisations will provide the *strategic consultancy* necessary for reengineering business processes to optimise the use of available technology.

Business services is the remaining mainstream services opportunity. As indicated in a previous bulletin (Vol. V, No.11) IT and business processes are increasingly becoming integrated.

Software and services firms are finding that a continuing development of technology skills requires more and more specialisation thus limiting the capability to maintain delivery skills at the customer interface.

Vendors are also experiencing the imperative to demonstrate an increasing awareness and knowledge of the customer's industry and business processes in order to deliver and support IT systems.

Industry Fragmentation and Concentration

In industry and commerce in general there has existed over the last twenty five years, a tendency for the average size of firms to fall. The break-up of some large firms into smaller units, e.g. Union Carbide and ICI, has contributed to this phenomena.

However, the information services business has witnessed an increasing concentration as large firms, for example EDS and Andersen Consulting in services and Microsoft, Oracle and SAP in software products, have grown faster than the overall industry.

The software technology sector is likely to become more rather than less fragmented in the future since it will be largely a function of individual skills and brain power from which success will be generated.

Microsoft is likely to become less and less a technology company and more and more a packaging company reliant on licensing agreements, technology alliances and acquisitions to feed the marketing machine that has been created.

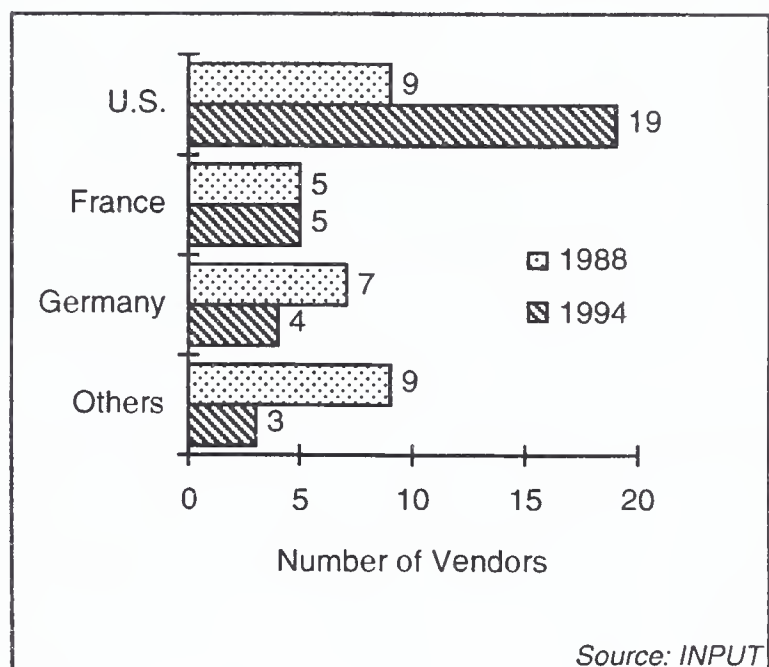
Hardware development will most likely become more concentrated since the investment levels required to bring technologies to a marketable state, note particularly that for processors, are increasing geometrically.

The packaging firms will also experience this same force, although this should not be interpreted to mean that no new large firms will emerge to take up industry leadership positions. It can be expected that new *Microsofts* and *Oracles* will emerge as new technology platforms become de facto standards.

The increasing concentration amongst software product packaging firms is clearly shown in Exhibit 2. The apparently inexorable advance of US based firms at the expense of European ones, with the notable exception of SAP AG, underlines the desire of customers for the security of *de facto* standardisation determined by what is viewed as the bellwether market of the United States.

Exhibit 2

Top 30 Software Product Vendors — Europe



Strategic Consultancy will remain largely a fragmented business since it must ultimately be driven by the expertise and experience of a limited supply of individuals.

However, it is most likely to continue to be led by a limited number of prestigious firms that confer their clients with the seal of an internationally revered brand image, but at a premium price.

Business Services is likely to become an industry characterised by both more concentration at the top end and more fragmentation at the lower.

Economies of scale will continue to drive industry concentration. These will include, service automation in the support of standard products, both hardware and software and the provision of asset based services, notably network services.

The Requirement for Networked Relationships

Services vendors need access to the technology and packaged product knowledge necessary to integrate and implement business solutions. Technology and packaged product firms require distribution channels for their products.

The knowledge and experience required to implement some of the most complex IT systems is now stretching out to a period of several years. For example Oracle expertise is

now generally reckoned to require anything up to 6- 8 years in its acquisition.

Consequently the imperative exists to develop relationships with vendors whose products or services are necessary conditions for service or solution delivery.

In addition to the development of relationships with complementary vendors is the issue of the development of partnerships with clients.

The partnership business relationship model has been frequently promoted by vendors, particularly by vendors of project contracting services.

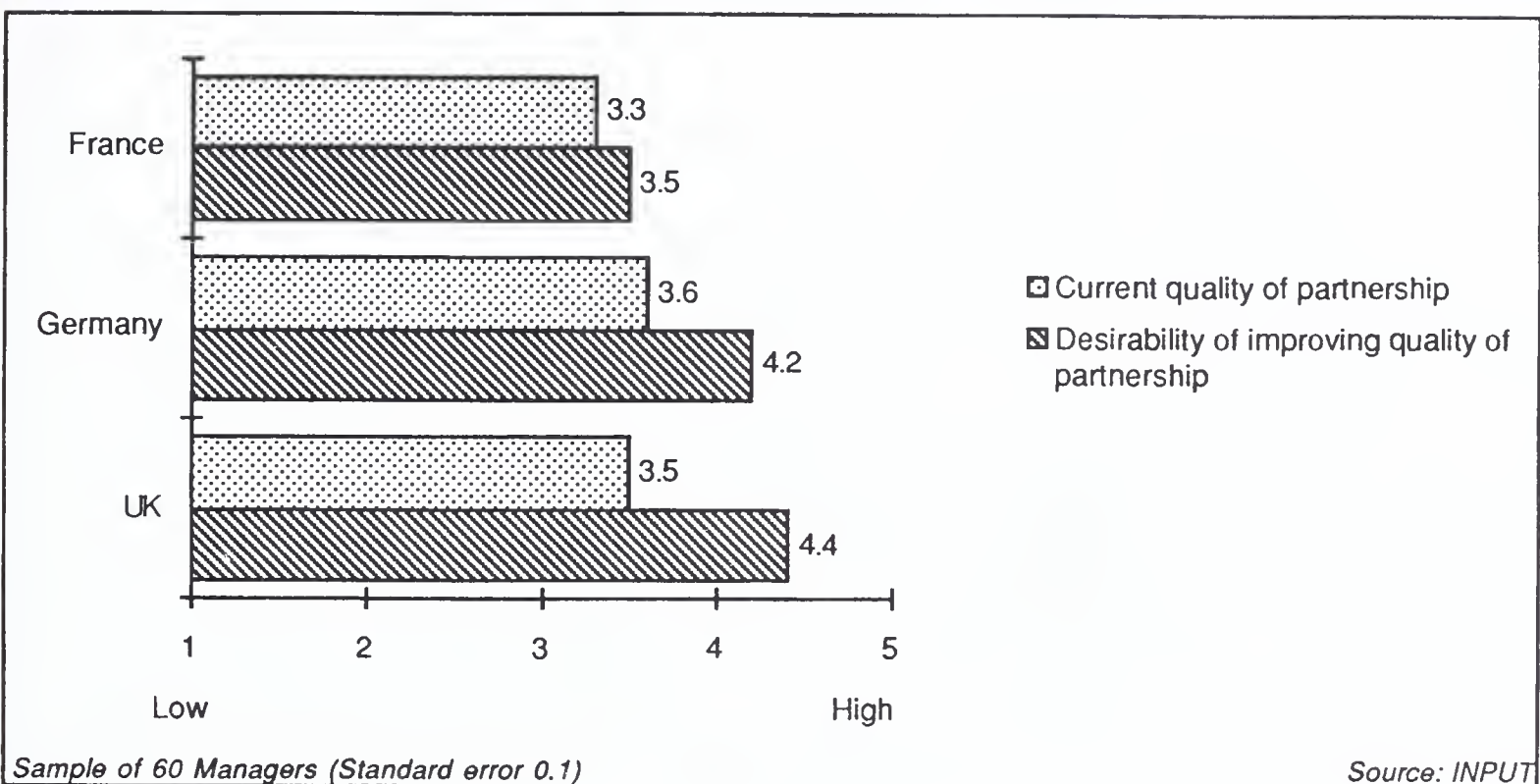
Unfortunately its value has been undermined by overuse and its application to inappropriate situations.

Consequently while it is a commonplace for vendors to talk about developing partnerships with their clients, in practice few true client/vendor partnership relationships exist and in consequence users remain sceptical about the vendor's true motivations and objectives.

These attitudes are illustrated by reference to the data from a recent survey summarised in Exhibit 3. Users express only moderate satisfaction with the quality of their current relationships with vendors, and except for France, a strong desire for those relationships to be improved

Exhibit 3

Client/Vendor Partnerships — Europe



A further complicating factor for information services vendors is the requirement to gain knowledge and experience of the industry sectors and business processes of their clients.

The information services industry will experience an increasing level of involvement and competition from other industry vendors, a concept that is expressed graphically in Exhibit 4.

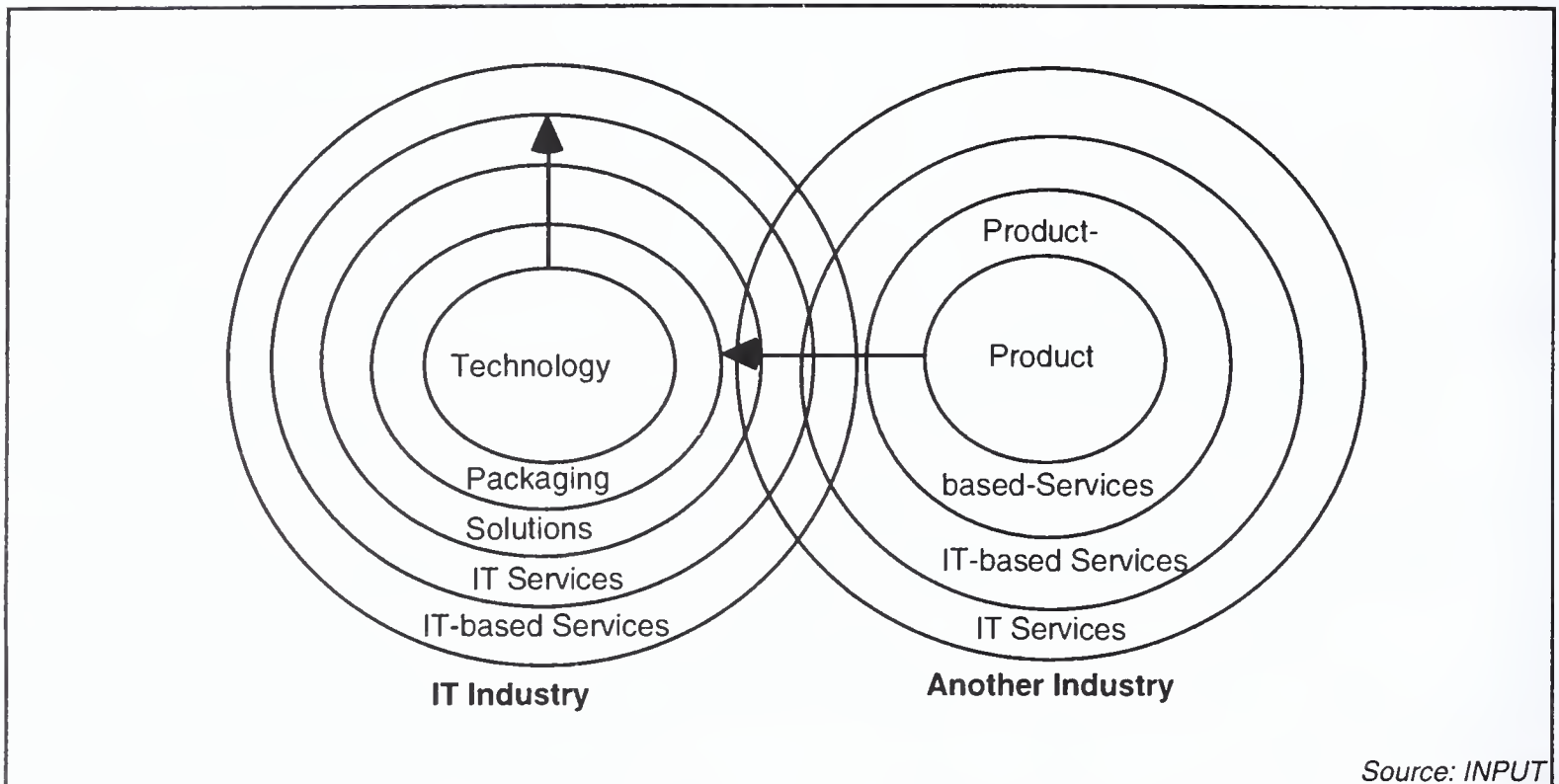
The requirement to focus attention on these industry intersections can be viewed both as a

defensive strategy and as a positive opportunity.

It will often be required as a defensive strategy to protect established clients from being drawn away to vendors able to demonstrate superior industry or business process knowledge.

It offers a positive opportunity for those vendors prepared to invest entrepreneurially in new IT based business services and business solutions.

Industry Intersections



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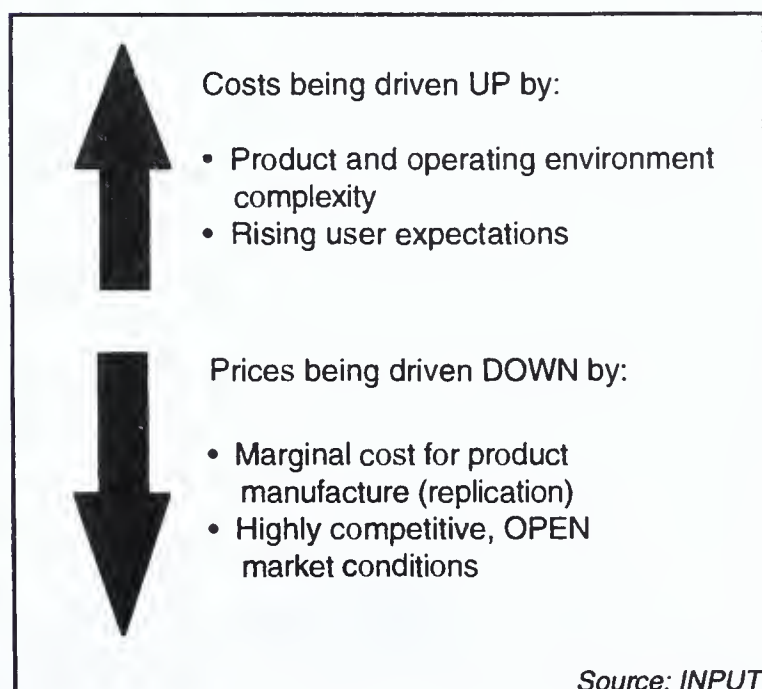
The New Realities for Software Product Vendors

Software vendors used to enjoy substantial profits (pre-tax profits in excess of 25% of revenues). They became used to levels of profit that no other sector of the information processing industry and few businesses of any kind could match.

Now, software product vendors face a painful combination of rising costs and falling prices as summarised in Exhibit 1.

Exhibit 1

The Software Product Vendor Challenge



Software product vendors can adjust to these new market realities by addressing:

- The *internal* challenge to utilise information technology for product development and customer support
- The *industry* challenge to help develop new standards and new inter-vendor relationships
- The *market* challenge to align user expectations with vendor capabilities.

Utilising IT for Cost Containment

Software product vendors need to utilise information technology to its full extent internally in order to address rising costs caused by product and operating environment complexity and the rising expectations of users for support.

It is a paradox of the software industry that organisations delivering leading-edge solutions are themselves conservative in their internal adoption of the same technology.

Automation is a key way to contain the cost of delivering support, and bulletin boards are indeed coming into widespread use by

software vendors. Development also, however, would benefit from greater use of new technology. Vendors sell the benefits of object engineering (OE) and rapid application development (RAD), but could make more use of these techniques themselves with a view to reducing the cost and improving the quality of the products they deliver.

All software vendors should give serious consideration to gaining ISO 9000 quality accreditation. They will incur costs in the short term, but over time they will save money and gain access to customers who are becoming more and more reluctant to do business with vendors who do not have a clear commitment to quality.

Increased Complexity Creates More Work for Developers and Support Staff

A comparison of the functionality of today's word processing products with their equivalents from only five years ago illustrates the issue of product complexity. 'Native' word processing functions such as spell-checking have acquired significantly greater sophistication, and new functions such as graphics and spreadsheet-style calculations have been introduced into word processors that previously were only found in other packages.

Today's software products inhabit a world of bewildering complexity. Large mainframe data centres and small desktop PCs have been replaced by flexible networked client/server environments with the possibility of multiple systems software standards (for example, operating systems and databases).

Increased complexity has a direct effect on the workload of developers and support staff and, for some categories of product, tends to increase the length of the sales cycle. All these changes increase the software vendor's costs.

Users have More Sophisticated Expectations of Product Quality and Functionality

Vendors, no doubt unconsciously, have become used to treating their software customers as a captive market. However, with products becoming more sophisticated and markets more open, so user expectations of software have become more refined.

The recent marketing difficulties that Intel Corporation experienced with the bug in its new Pentium chip provide an indication of rising user expectations and provide an example of the way that vendors can misjudge user tolerance.

It is difficult for vendors to meet heightened user expectations without spending money on, for example, more rigorous testing of software products prior to general release. Microsoft is clearly engaged in such a process for Windows 95.

User expectations are a key factor influencing price. Users no longer meekly accept what vendors impose. They have indicated their unwillingness to pay artificially high prices for mainframe packages, and still express a desire to retain the convention that support for PC packages is either free or delivered at less than cost price.

Deflationary Market Conditions for Software Products

Software pricing is changing radically. In the mainframe world, processor-based pricing, both for products and their support, is being replaced by varieties of usage-based pricing. In the PC world, individual products are being bundled together into *suites* such as Microsoft Office and Novell's PerfectOffice.

One measure of competition is INPUT's estimate that there are up to 15,000 new products and releases of existing products each year.

Many products resemble each other closely, particularly in established markets such as those for single-user desktop products. The inevitable result of software products acquiring commodity characteristics is that price competition increases dramatically.

The marginal cost of replicating (manufacturing) software products supports this trend.

Collectively these factors have caused a deflationary shift in software product pricing.

Software product vendors cannot ignore the challenge of rising costs and falling prices. They must overhaul their approach to many aspects of their business if they are to survive, let alone to flourish.

Vendors must Work with Colleagues on Initiatives of Mutual Benefit

Lou Gerstner, Chairman and CEO of IBM Corporation, recently commented that he had seven different PCs in his office, all with different user interfaces. He remarked on the adverse effects that the automobile industry would have suffered if it had not developed standard positions for the clutch, brake and accelerator pedals.

Vendors should encourage any initiative to develop software standards, particularly for operating systems and user interfaces. Such standards will not only make software easier and cheaper to develop; they will also make it easier to use and therefore more attractive to buy.

Vendors must recognise that the increasing complexity of software environments means that they may not be able to do everything themselves. Working with partners, on development or support, is not an admission of failure but a way of serving customers as effectively as possible and thereby securing customer loyalty.

The Market's Expectations must be Aligned with what Vendors can Reasonably Deliver

Vendors' marketing departments will have to devote some effort to managing their customers expectations.

In some cases, this means changes to their own company's plans, for example by injecting a note of realism into announcements of their product capabilities and delivery dates.

In other cases, this means persuading users to accept unwelcome change. The introduction of charging for support of PC software products reflects the increasing cost of delivering the support, and is not an unreasonable change.

Users, however, have become used to 'free' support, and will need persuading of the benefits of the change.

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Research Bulletin

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1996

All Change at CGS?

Restructuring developments within the Sogeti holding company over the last month have been useful in shedding light on this major European computer services and consulting organisation.

It has been difficult to fully understand the complexities of the organisation due to the maze of cross-shareholdings that existed within it. The restructuring is significant in that it claims to present a clear structure and vision for the group - termed the "new" Cap Gemini Sogeti (CGS). A new name for the group is to be announced in the first half of 1996.

This raises certain questions:

- What is the impact of the restructuring?
- How will this work out in practise?
- What will be the key issues for such a group?

The Impact of Restructuring

Prior to the restructuring 59% of Sogeti was owned by CGIP, Serge Kampf (CEO) and company managers and 34% by Daimler-Benz (acquired in 1991); the rest (7%) was

held by financial institutions. Sogeti, in turn, owned 61.5% of Cap Gemini Sogeti (CGS), although CGIP and company managers also held separate stakes in CGS accounting for 6.7%. The remainder (31.8%) was held by the public. Sogeti and CGS owned 66% and 34% of Gemini Consulting respectively.

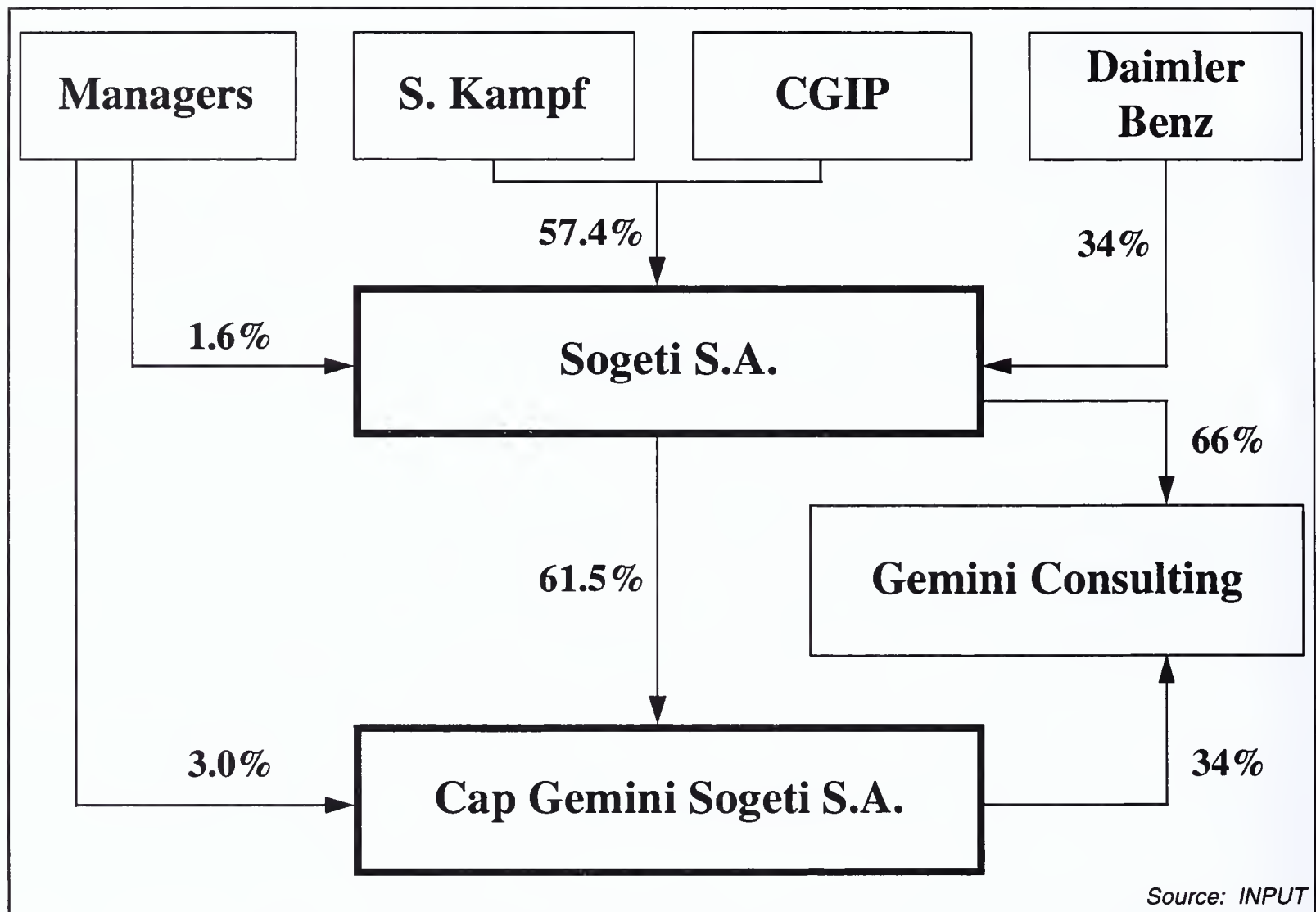
Now the structure is relatively simple. CGIP, Serge Kampf and Daimler-Benz (in effect, debis, its services company) account for just under 70% of "new" CGS, with around 30% owned by the public (See Exhibits 1 and 2).

Because of US regulations which severely restrict banks in the services sector if they hold over 25% of a company, Daimler-Benz has to hold less than 25% under the new structure. Daimler-Benz's primary shareholder is Deutsche Bank.

At one level, the restructuring is seen simply as a move by Daimler-Benz to influence management within the new group, after being a relatively powerless shareholder for the last four years.

Exhibit 1

CGS – Pre-Restructuring



It also signifies the need for a transparent structure within French companies, who traditionally have hidden behind 'cascading holding companies'.

Under the new structure Cap Gemini will be governed by two boards. One will be in charge of operations and chaired by Kampf; the other, a shareholder supervisory board, will be chaired by Klaus Mangold, chairman of Daimler-Benz InterServices (debis).

One positive implication is that if this restructured Franco-German partnership does work then the group would form an effective force against the oligopoly of American competitors in Europe. But one of

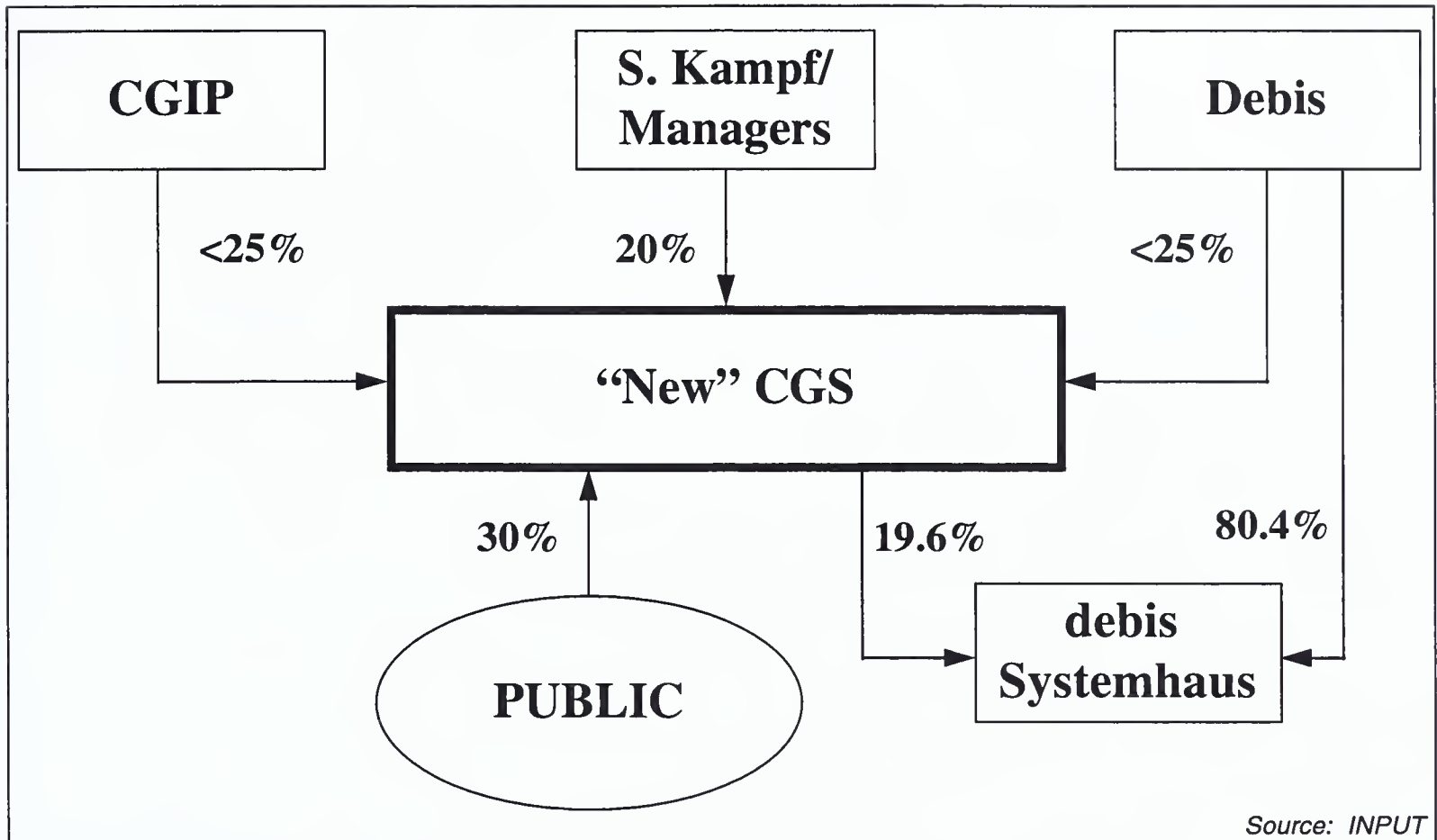
the key issues is how such a restructuring will help create synergy between the consulting and IT services divisions.

Geoff Unwin, Cap Gemini chief operating officer, has argued that the move will bring two important parts of the business closer together while "preserving the cultures".

He claims that the group won between 40 to 50 contracts as a result of using more of Gemini Consulting's services. But there are already signs that this will be hard to engineer within the new structure.

Exhibit 2

CGS - Post-Restructuring



Source: INPUT

What Will Happen in Practise?

One of the main criticisms of Sogeti is its lack of co-operation between Gemini Consulting, debis Systemhaus and Cap Gemini. Paris-based Cap Gemini, German-based debis Systemhaus and U.S.-based Gemini Consulting have radically different corporate cultures.

Interestingly, as Jurgen Schrempp, Daimler's new chief executive, begins his restructuring plan for the company, Gemini Consulting is not even among the nominated companies.

There is even speculation that the restructure is a prelude to Daimler divesting Sogeti entirely as Schrempp wants to keep only services related to transport.

In Germany little synergy has existed between debis and Cap Gemini since the 1991 agreement, despite merging the operational units into a single entity (debis Systemhaus) in February 1994.

Furthermore, the two groups have invested separately in consultancy groups - Diebold (debis) and Gemini (Sogeti) - a situation which still exists today. Sogeti argues that the two consultancies have distinct markets. But it would be less confusing to the client to operate together, particularly as this was the rationale behind the move to work under one name in Germany in the first place.

But there are positive indicators that co-operation between the various units will increase:

Exhibit 3

Sogeti Group - Strategic Business Areas (SBA)

Sectors	SBA
Finance	UK
Utilities	Nordic Countries
Retail, Distribution & Logistics	Benelux
Government & Public Services	Germany
Telecom & Media	Paris, France
Manufacturing	France (exc. Paris), Italy, Spain, Austria, Switzerland
Process Industries	USA
Travel, Transport & Tourism (T3)	CGS/ Gemini Consulting

Source: INPUT

- Initially, there was no debis representation on the operational board, although Kampf has now nominated Karl-Heinz Achinger, president of debis Systemhaus, to be part of this group
- Growth perspectives are good for services and consulting - particularly linking the two together in one offer; debis Systemhaus, CGS and Gemini Consulting could potentially make an extremely powerful combination
- debis wants to develop services in the financial sector, an area in which CGS is strong; revenues in this sector, which accounts for more than 20% of CGS' total revenues, grew by 21% in 1995
- Sogeti has allocated the sector of Travel, Transport & Tourism - particularly important given Daimler's focus on transport - to CGS and Gemini Consulting (see Exhibit 3), rather than a specific geographical region; this sector was one of the best performers in 1995 generating a 19% revenue increase - this was only bettered by financial services (21%) and telecoms and media (24%)

- Mangold is arguing that the restructuring represents a long-term, strategic investment on behalf of Daimler and debis to have a presence in the services sector where growth is above 10%.

It remains to be seen how the significant cultural obstacles will be overcome and how services will be structured so that the client sees *one* offering rather than a multiplicity of services from different sources. The introduction of a new name will assist in this branding and identity issue.

The restructuring seems to *imply* that such change will occur but the evidence is at best still ambiguous at the present time.

What will be the key issues for such a group?

First, there must be a *return to profitability and growth* for the group. The restructure has highlighted the losses made by CGS and Gemini Consulting.

CGS, however, recently announced provisional results showing net profit of FF 52 million for 1995 (versus a loss of FF 94 million in 1994).

This is the first profit since 1991. Revenues increased by 11.3% from FF 10.2 million in 1994 to FF 11.3 million in 1995.

Gemini Consulting, however, generated a loss, despite being highly profitable over the past few years. (Exhibit 4 gives a more detailed revenue breakdown).

Second, in order to maintain market share and defend its number two European ranking Sogeti also needs to *rationalise its services portfolio*.

As with any large organisation, there are a wide variety of services being offered to clients from a whole host of operational units, even if such services are delivered via the SBAs.

This can be potentially confusing for a multinational client wishing to work in Europe through one point of contact.

It would be appropriate to focus on specific areas of business which represent core competencies and strengthen those areas

through acquisition or alliances. Sogeti also needs to decide which areas it should divest.

Third, Sogeti needs to *reposition itself at the board level* as a provider of strategic business consultancy, using IT to provide competitive advantage.

Recent INPUT research shows that clients do not perceive Sogeti as a potential business partner, despite possessing the capabilities of Gemini Consulting.

It may be that in the past consultants have been used purely as a lever to gain entrance to a client's business. Once the contract has been secured project management teams are brought in and on-going consultancy work is not deemed necessary.

Clearly, a major issue is whether the recent announcements will make any difference to the way business is done within Sogeti's operational units. That is the challenge ahead.

Exhibit 4

Operational "New" CGS - Financial Analysis, 1994-95 (*preliminary*)

Division	1994 Revenues (\$m)	1995 Revenues (\$m)
Cap Gemini Sogeti	1,836	2,275
Gemini Consulting	550	545
debis Systemhaus	1,124	1,385
Operational "New" CGS	3,510	4,205

Source: INPUT

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Research Bulletin

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1996

Users Want Greater Business Focus From Vendors

Recent INPUT research among IT directors within the user community indicates that relating IT to business objectives is as critical as ever for vendors:

- Vendors are perceived as technology advisors — not business partners or change agents
- An understanding of current business needs is seen as the most important vendor quality
- To help users achieve their IT goals vendors need to effectively apply IT to the business.

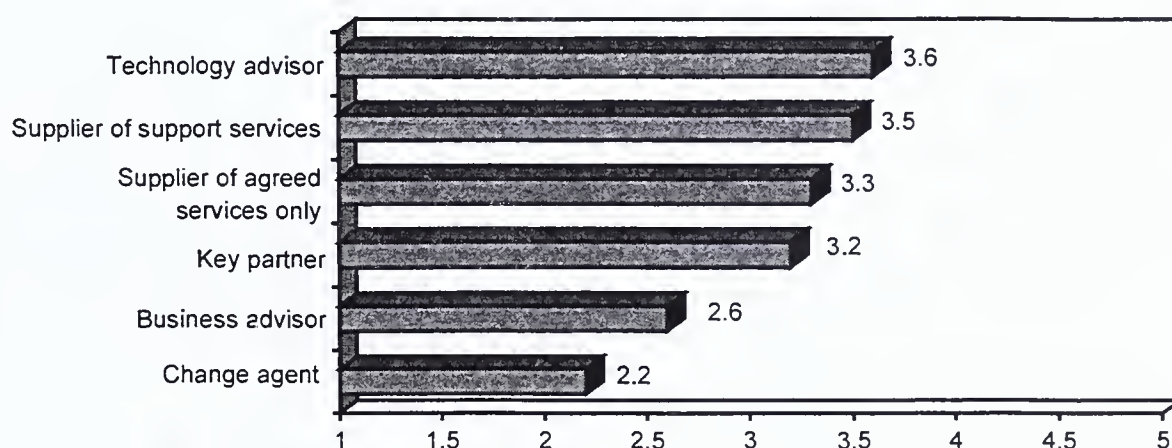
Exhibit 1

Vendors Seen As Technology Advisors — Not Business Partners

Being able to guide users as to what is the best and most current technology in the market place is still perceived as the dominant role for vendors (see Exhibit 1).

This is particularly the case in the financial services industry (banking and finance, insurance) where instant access to information is essential to the business and provides such organisations with a genuine competitive advantage. Government and manufacturing also regard this as a major role for vendors.

IT Manager's Perception of Vendor's Role



Source: INPUT

Vendors are still predominantly perceived as providing a support role. This is in distinct contrast to the marketing messages sent out by vendors positioning themselves as business advisors or change agents providing re-engineering capability. Users still remain unconvinced about vendor skills in this area.

The encouraging news is that the traditional role of vendors — simply a supplier of agreed services and nothing else — is not as important as it used to be. Users do acknowledge that vendors can provide a whole range of services.

There are signs that users are setting up “strategic partnerships” with vendors. But this term can include anything from an informal, unwritten understanding to a detailed, legally binding arrangement.

In particular, users are becoming increasingly aware of the benefits of a medium-term relationship — particularly in the financial services and government sectors. Overall, although the roles of change agent and business advisor appear relatively unimportant, one sector in particular scored highly in each compared to all the others - government.

While IT budgets have been cut many times the French government considers IT investment to lead to greater productivity. Despite spending cuts there is still considerable investment in such areas as management systems.

In Italy government attention continues to be focused on the re-engineering of processes and services, supported by new procedural directives. The main priorities are: transparency in administrative procedures, service quality and inter-departmental integration.

In the UK, the Private Finance Initiative for central government and compulsory competitive tendering at local government level has, by the very nature of the task, led to long-term vendor relationships which will bring about substantial change.

Understanding Business Needs Is A Key Vendor Quality

It is imperative that vendors display knowledge of the business drivers within the client's industry as well as the general business pressures users are facing (see Exhibit 2).

The largest difference between importance and satisfaction is in speed of response. The more critical the attribute the greater the gap between importance and satisfaction.

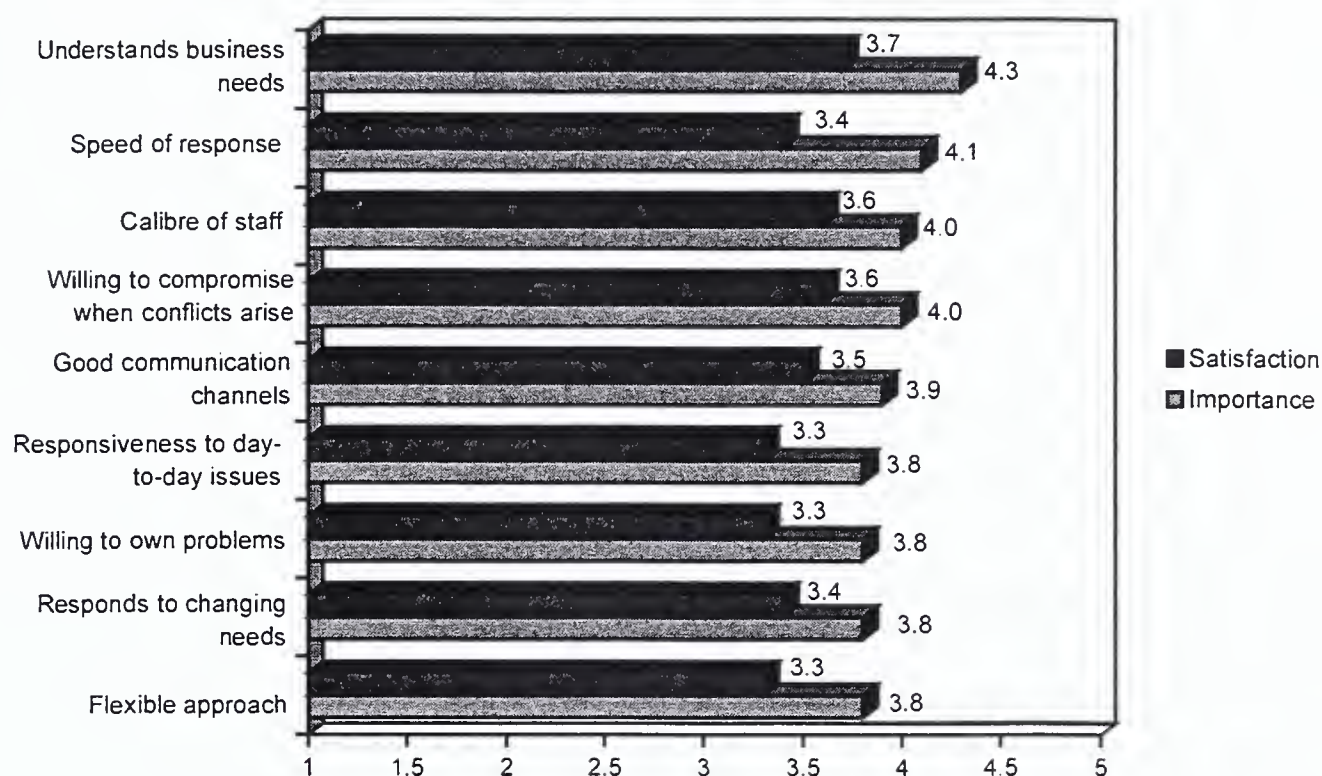
Vendors are still perceived as relatively inflexible and lacking in innovative approaches to client problems.

This may be partly due to the way projects are agreed — namely, drawing up a legal document that details specific deliverables at certain times. This approach is not conducive to adopting a flexible position.

Initiatives in the market, such as value-based pricing, where risk and rewards are shared by user and vendor alike, are beginning to make an impact. This is the case particularly when contracts are five or more years in duration as the business environment will undoubtedly change over that period. Contracts involving a value-based approach at the very least allow for an opportunity to change the key metrics of the project, assuming both sides agree.

Exhibit 2

Vendor Attributes: Importance & Satisfaction



Source: INPUT

When analysing the most important attribute, that of understanding business requirements, the two sectors that regard it as most important — telecommunications and government — are among the most dissatisfied (see Exhibit 3).

Given the complex nature of the evolving telecommunications market — its relationship with the Internet, the world of media and entertainment and content/ on-line information services, as well as alliances with utility companies, banks and retailers — it is understandable that the future business needs of this sector are sophisticated, to say the least.

Likewise with the government sector. Events such as the Private Finance Initiative in the UK plus deregulation of state-owned assets across Europe have unleashed powerful competitive forces.

The challenge to vendors is to seek to understand the issues for clients inherent in such sectors and, to a large extent, predict their future competitive landscape. By way of contrast, process manufacturing, banking, utilities and transport/ logistics appear relatively satisfied with vendors' knowledge of their business needs.

Exhibit 3

Understanding Business Needs: Sector Split

Sector	Satisfaction	Importance	Variance
Telecommunications	3.6	4.7	1.1
Government	3.5	4.6	1.1
Utilities	4.1	4.6	0.5
Retail	3.7	4.5	0.8
Health	3.6	4.4	0.8
Banking & Finance	3.8	4.2	0.4
Transport/ Logistics	4.0	4.1	0.1
Insurance	3.6	4.0	0.4
Process Manufacturing	4.0	4.0	-
Discrete Manufacturing	3.4	3.8	0.4

Source: INPUT

Applying IT To The Business Is A Key Vendor Goal

There are two ways in which IT managers see vendors contributing to their IT goals: by effectively applying IT to the business and reducing time to implement new systems (see Exhibit 4).

The application of IT to business processes cannot be ignored at board level any more. It provides new ways of integrating supply, manufacturing and distribution and is producing large gains in customer value at lower cost.

In fact, technology is redrawing the boundaries between historically separate industries: between computing, telecommunications and entertainment, between banking and other financial

services and (in the near future) between food and pharmaceuticals.

It is redefining the management task itself and in many companies is becoming the *critical agenda item* for general management.

Reducing time to implement new systems will always be an area where there is relatively low satisfaction. Implementation times are getting shorter — but so are business cycles.

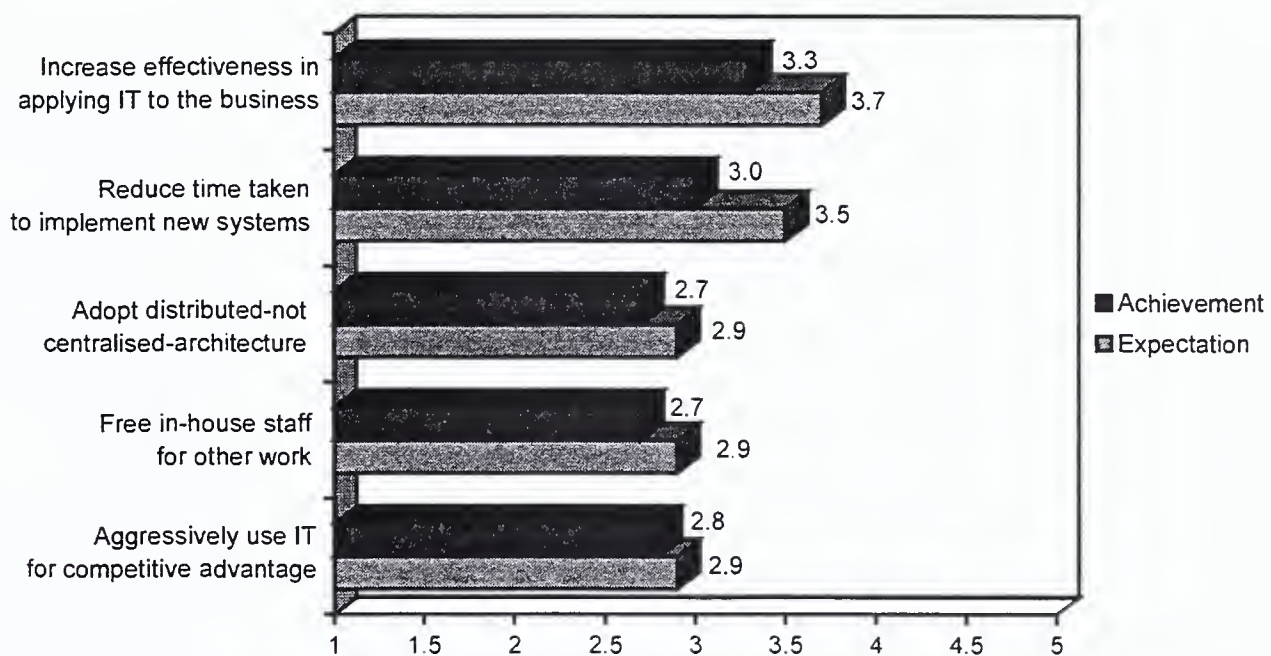
Also, the complexity of the new systems installed requires greater project management skills plus increased awareness as to how this system will *integrate with the rest of the business*.

Often new systems are delivered on time and within budget — but the information flows delivered to that system from other sources within the organisation can be poor quality and thus, at best, temporarily nullify the effect of such IT investment.

It is also worth noting that vendors are not perceived as helping users to gain competitive advantage through the use of IT. The message here is that users would like guidance in this area but are not yet convinced that vendors are the people to give it.

Exhibit 4

Extent of Contribution to User IT Goals - Expectation and Achievement



Source: INPUT

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The Smart Card is Dead – Long Live the Smart card!

Electronic or “cash-free” commerce has developed as one of the first smart card applications, with phonecards enjoying greatest commercial success. Yet after the Mondex electronic purse trial in Swindon, England, the system has been pronounced a failure with less than 6% of the town's population choosing to use it.

Are smart cards dead? For ‘open’ systems maybe, but for ‘closed’ situations — such as the internal markets of universities and government agencies, INPUT believes probably not.

Moreover, the key to greater success of smart cards in the future depends, critically, on the development of multi-function cards assisted by new radiowave technology. This development makes ‘contactless’ cards feasible, opening up opportunities to use these cards for many new applications.

This bulletin explores:-

- Market drivers and growth prospects for smart card technology
- Case studies of latest smart card applications
- Major players and alliances.

Exhibit 1

World-wide Market Growth Forecast for Smartcards

Vertical Market	No. in circulation - 2000 (bn)	CAGR 1995-2000
Telecommunications	1.0	20%
Medical use	0.4	20%
Bank & Loyalty Schemes	0.3	100%
Pay TV	0.1	60%
Travel	0.1	60%
I.D's and security	0.2	new market
Utilities	0.1	new market

Source: INPUT

What Constitutes a 'Smart' Card?

Smart cards look like credit cards, except they have a microchip embedded in them instead of a magnetic stripe applied to the back. By incorporating a chip, they can have multiple applications and security features, making them desirable for secure financial transactions. Unlike credit cards, they can be used to pay small amounts and the card itself is more difficult to forge.

The next generation of cards being developed is "contact-less" smart cards. These can be "waved" near a small controllerbox, whereby data is transferred via a radio signal from a radio antennae embedded in the card. These cards are reloadable and have greatest commercial potential in situations where users are in transit and payment is necessary to gain access onto, for example, a train network or road tollway. Here they offer significant time saving advantages over cash payment or cash-based ticket machines.

Market Drivers and Growth Prospects

In 1998, the number of smart cards shipped in Europe is forecast to exceed the number of magnetic stripe cards for the first time. Surprisingly, smart cards are less widely in use in America.

In volume terms, INPUT estimates the number of smart cards in use world-wide by 2000 will be in the region of 2 billion. Exhibit 1 gives a split by category.

Revenues for 1995 were estimated at \$0.86bn, rising to at least \$2.5bn by 2000 (an average compound growth rate of 25%). However, this is a very moderate estimate; more bullish forecasts predict a market of \$5bn by 2000.

The top five smart card producers in Europe alone distributed 370 million smart cards in 1994 and nearly 500 million in 1995. In France 60% of people use smart cards, 21 million smart bank cards are in circulation and over 80% of all pay phones no longer accept coins or tokens.

The drive to lower transaction costs is driving much of this market, as illustrated by the following statistics:-

- Each cheque costs the financial institutions between \$1.00 and \$1.30 just to process it — it costs 10% of this cost to process such transactions electronically. In the US there are 300 billion cash transactions per year for amounts under \$10.
- It costs airlines a minimum of \$7 to issue a paper ticket (this is conservative: various sources estimate \$17 to \$35) — it costs \$1 electronically.
- Another major driver is the aim to reduce fraud and payment avoidance:-
- UK Municipal transport services experience 5% loss through shrinkage (theft) as well as 2% to 7% loss through management of coins
- On current projections, losses to US banks from credit card fraud will exceed \$1.3bn by 2000.

Case studies of latest smart card applications

Hong Kong Airport

In April 1995 Riva Group, leaders in EPOS system integration, chose Racom's contact-less radio frequency smart cards for use in a cashless electronic payment system for Hong Kong's new airport.

The initial order included 15,000 smart cards and radio frequency communications controllers. This will be the only form of payment accepted for goods and services within the airport's restaurant, bars and shops. The card is loaded with the employee's weekly pay and has an additional purse for personal cash.

Los Angeles Public transport

Racom have also installed contactless smart cards for automatic fare collection in the Los Angeles area. The card is loaded with bus fare; when passengers board, they swipe the card over the controller. The advantages are numerous: boarding is quicker, the driver no longer has to handle cash and theft of the purse and driver robbery are eliminated.

Other applications by Racom in the travel sector include:-

- *Car parking fees:* the facility is entered by smart card access only and payment is calculated upon exit and accrued to the customer's account, thus leading to lower overhead costs, reduced waiting times at exit points and solid user demographic information.
- *Airlines:* reduced queues, faster boarding, passenger tracking and reduced risk of lost tickets and fraud are some of the benefits inherent in using smart cards to book flights. Smart cards can hold information including ticket number, seat selection, check-in, boarding and status. There are obvious marketing opportunities, including loyalty and frequent flyer programmes, which can be tied into specific industries (such as banking) which wish to share the cost of promotions.

Such cards have no parts to replace and the electronics are sealed and cannot be

touched. Card and equipment life are substantially extended, vandalism is reduced significantly and replacement costs are reduced. During contact, cards can be left in a wallet or purse.

Spanish Health & Social Security Systems

The Spanish social security card project follows on from a 300,000 card trial in 1995. It aims to replace paper-based documents with personalised smart cards. The card will contain data from the social security and labour ministries, which are responsible for pensions, employment, health and social security membership.

The contract is for Motorola to supply 7 million cards in 1996, rising to 40 million by 2000, at a cost of \$400 million. Information will be available via 1,600 kiosk terminals developed by NCR plus 3,300 local health networks. Local government will house 21,000 PCs linked to a central database.

Users can review their own work history, benefit status and obtain work certificates from local government offices. At health care centres prescriptions will be issued along with temporary inability and maternity leave reports. *For the first time fingerprints will be read and cleared at the kiosk or PC before gaining access to information.* Read-write units are being supplied by Siemens-Nixdorf Informationssysteme AG and biometric identification equipment by Unisys.

Major Players in Electronic Purses

There are multiple suppliers who make money in two ways:-

- Earning interest on the money that is held on the card

- Charging a transaction fee (about 3 cents per transaction).

Some of the most important players are shown below.

1. Mondex

Apart from the UK scheme, Mondex is active in North America and the Far East.

In November 1995 Canada's two largest banks - Royal Bank of Canada and Canadian Imperial Bank of Commerce - announced they would launch the Mondex system in the Canadian town of Guelph in the second half of 1996.

In February 1996, Mondex franchise rights were sold to the Hong Kong and Shanghai Banking Corporation (owner of Midland Bank in the UK) for the territories of China, India, Singapore, Thailand, Indonesia, Malaysia and the Philippines.

In March 1996 National Westminster Bank introduced a multi-purpose smart card for 10,000 students at the University of Exeter - the first major smart card experiment in the UK outside Swindon.

In May 1996 Mondex announced an agreement with Verifone to offer hardware/software solutions compatible with Mondex electronic cash payment systems.

In June 1996 Australia's four largest banks and New Zealand's six largest banks established joint ventures to launch Mondex within their countries.

2. Schlumberger

Schlumberger is one of the world leaders in smart cards and the unique supplier of the entire range of smart card technology. Its solutions perform secure transactions for

public and private sectors across a wide range of sectors including tele-communications, health care, financial services, mass transit ticketing and parking management.

3. VeriGem

This is a joint venture between *Gemplus*, a French company which is the world's leading manufacturer of smart cards, and *Verifone*, an American-based firm which is the leading global provider of POS (point of sale) transaction systems.

In June 1996 Gemplus launched its multi-currency electronic purse CLIP - the first to comply with Visa, Mastercard and Europay specifications (EMV), to be released later in the month.

Gemplus is also involved with Europay in the development of "Pay now - Pay later" smart cards, based on EMV specifications. (Europay, a Belgian company, is the leading provider of personal payment services to European banks with the largest European network of 133,000 ATMs in 30 countries and 132 million cards).

In October 1995 Hewlett Packard and Informix joined forces with Gemplus to develop smart cards.

In May 1995 Gemplus acquired Datacard's world-wide card production and personalisation services. Datacard is the world's leading manufacturer of conventional cards.

Verifone designs, manufactures and supports systems and software focused on electronic payment mechanisms. Verifone provides access to all the principal payment networks and is developing secure systems integration solutions for payment on the Internet. It is a major developer of network

management software and client-server payment processing.

Typical applications include debit/credit card authorisation, settlement processes, claims submission for health care providers, welfare benefit payments for government agencies and electronic purse loyalty programmes.

Verifone reported revenues for 1995 of \$387 million (net income \$32.5 mn), 22% up on 1994 revenues of \$316.1 million (net income, \$28.1 mn). Verifone employs 2,470 employees (over 50% employed outside the USA).

4. Visa

Visa offers a product called VISA cash that may be purchased as a disposable or reloadable card. This is based on a system of multiple card issuers and merchants and requires funds clearing operation. Visa has several ongoing pilots for such stored value cards around the world - such as Spain, Latin America, Canada and Australia.

The first phase will be in Atlanta, Georgia in anticipation of and during the 1996 Olympic Games. Each athlete will be given a smart card (fitted with a computer chip and memory) that will allow them to purchase anything within the Olympic village.

5. Motorola

Motorola is determined to become a major player in the microprocessor smart card market. In March 1996 it announced two

European contracts with Spain (noted earlier) and the Czech republic region of Litomerice, where 10,000 cards will be issued at a cost of \$3 million, with 10 million cards by 1998 (cost: \$60 mn).

Pay-TV and mobile phones have to date provided Motorola with its biggest markets.

Consolidation Inevitable in Electronic Commerce Sector

Despite the current proliferation of systems, INPUT expects that the industry will consolidate and two or three formats will emerge, run by various networks of purse operators.

Significantly the Swindon trial has shown that the banks and retails are more enthusiastic about electronic purses than are the public. Whereas banks are relieved of transaction costs and retailers the usual burden of cashing up, users have expressed frustration at the limited number of outlets where the card can be used.

Yet this is a phoney war: as smart card technology advances, new opportunities are opening up in other areas where tamper-proof information is required - for example, to store secure information about individual health records and other personal details such as passports and I.D. cards. For these applications, growth continues apace and Schlumberger, not Mondex appears to have developed an early lead.

This Research Bulletin is issued as part of INPUT's Market Analysis Programme—Europe. If you have any questions or comments on this bulletin please call your local INPUT organisation or Chris Harris at: INPUT, Cornwall House, 55-77 High Street, Slough, Berkshire, SL1 1DZ. Tel: +44(0)1753 530444.

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Research Bulletin

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1996

Year 2000: Many Vendors Already Nearing their Resource Capacity

Bullish forecasts have been made by analysts recently, indicating that the worldwide market for Year 2000 solutions will amount to some \$400 to \$600 billion over the next four years. These forecasts have been made on the basis of multiplying the anticipated number of code line changes by the number of programmers' man-hours.

INPUT calls into question these estimates on the grounds that all resources will be exhausted long before those theoretical maximums are reached. Supporting this view, this Research Bulletin cites primary research obtained from IT service vendors which shows evidence of:

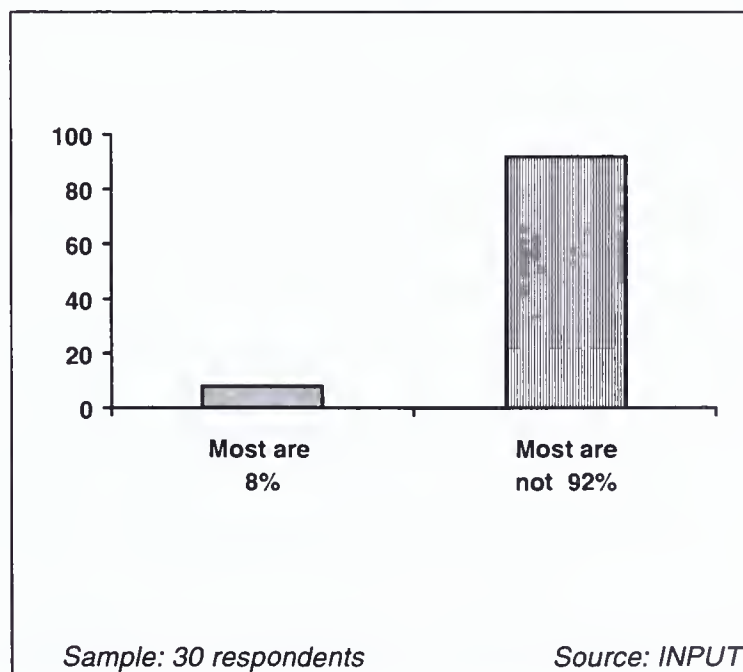
- Inertia on the part of the majority of IT users, causing unrealistic time frames to be allocated to coding changes before the Year 2000 deadline
- Many vendors already nearing their resource capacity and 45% of the sample not able to take on unscheduled work because of a lack of programmers
- A surprisingly high 74% of vendors either using or planning to recruit programmers from Asia.

Users Slow to Move

Vendors were asked whether they thought that users were responding quickly enough to allow Year 2000 work to be completed in time. As Exhibit 1 shows, the vast majority (92%) thought that they were not, with a few leading companies such as Esso, Shell and British Telecom (BT) being the exception.

Exhibit 1

Are Users Responding to the Y2K Issue Quickly Enough to Meet the Deadline?



Some vendors contacted had noticed a recent increase in the number of inquiries from some smaller companies in the light of BT's campaign to encourage all its suppliers to be Year 2000 compliant ahead of the deadline.

However, whilst most users are now at least aware that Year 2000 problem exists, relatively few (less than a third by Microfocus estimates) have actually started implementing a definitive action plan.

Most Vendors Anticipate Peaks in Workload in 1998 First Quarter

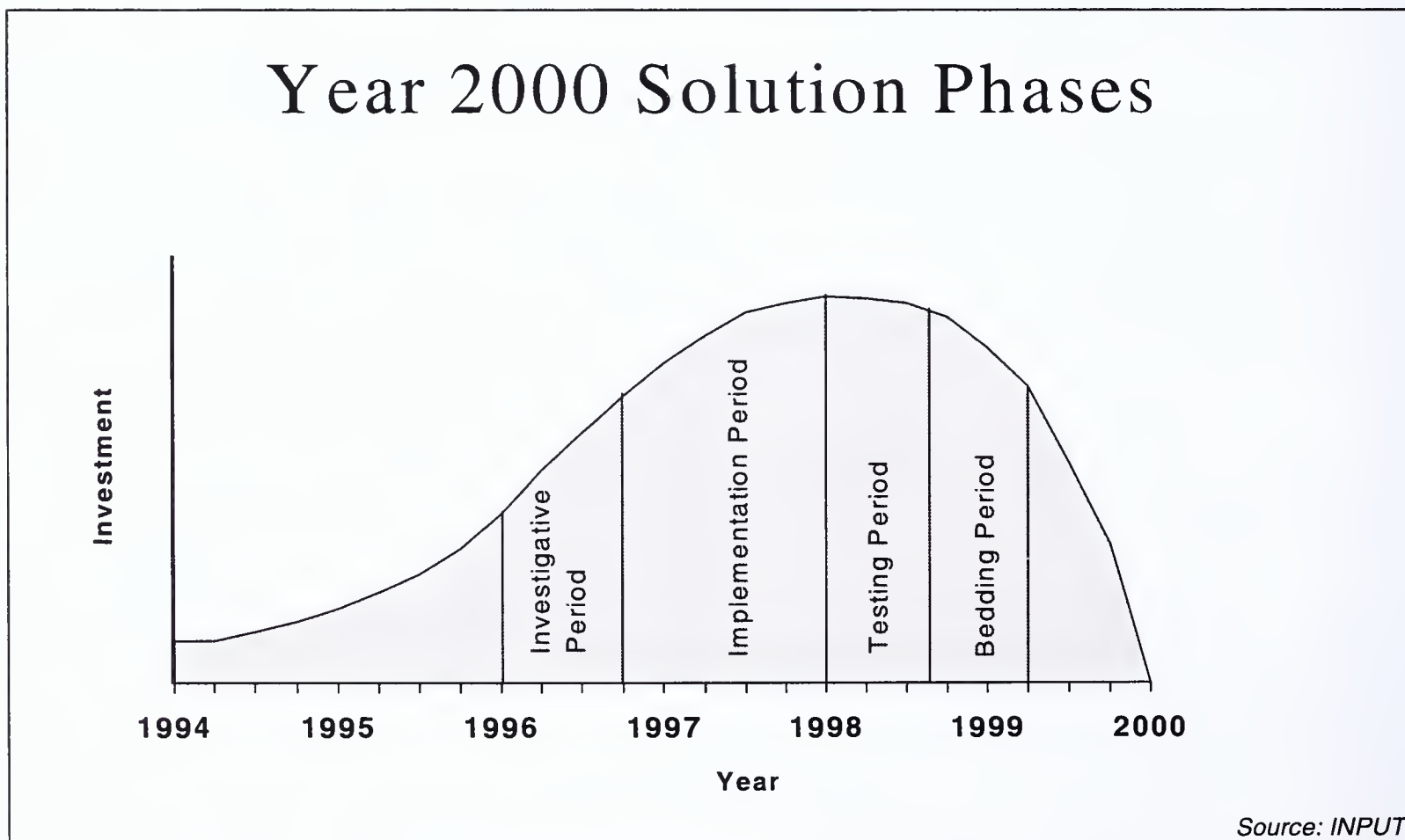
Most companies active in supplying Year 2000 solutions have split their service offering into at least three stages:

- *Stage One* — an investigative phase, when the extent of clients' coding problems are analysed and solutions costed
- *Stage Two* — an implementation phase, when automatic software tools are used to trace/adjust double digit date codes to four digit codes in conjunction with manual correction techniques
- *Stage Three* — a testing phase, when the new code is subjected to typical working routines using dates beyond 2000.

In terms of workload, this translates into a peak of programming activity, materialising in late 1997 and early 1998, as illustrated in Exhibit 2.

Exhibit 2

Year 2000 Solution Phases



Of the companies surveyed, all appear to have anticipated workloads which match this model. One vendor suggested that there would be two peaks — the first in Mid 1997 for implementation and the second in March 1998 for testing.

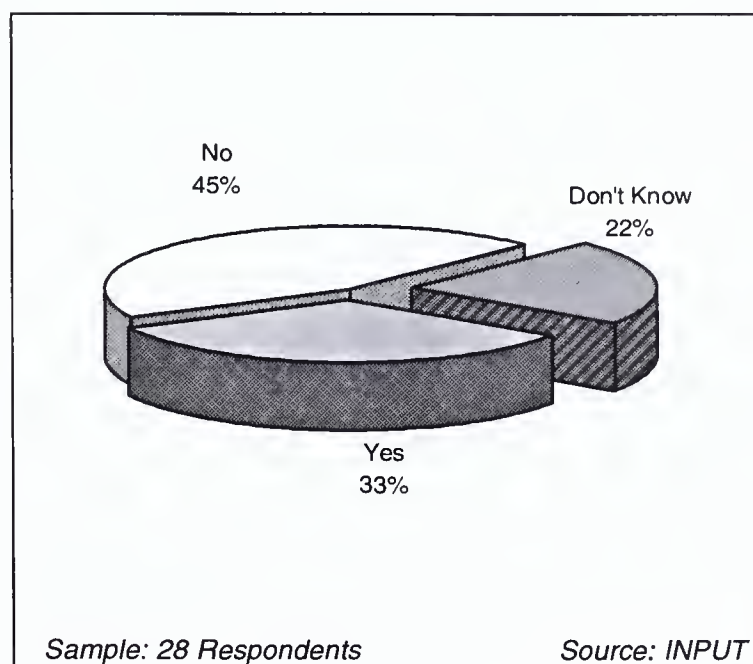
Many Vendors not Intending to Take on Unscheduled Work

Alarming for the business community as a whole, the majority of vendors have taken a 'will do what we can' approach, but appear not prepared to take on Year 2000 projects beyond scheduled work commitments.

When vendors were asked if they thought their company *did* have enough Year 2000 staff resources to meet potential demand, 45% of vendors responded negatively, as illustrated in Exhibit 3. This was primarily because of an anticipated shortage of programmers.

Exhibit 3

Will your Company have enough Y2K Staff resources to Take on Unscheduled Work?



Given the level of user inertia noted previously, it appears that users have not yet grasped the concept that they are in a sellers' market, with a relatively high potential for market failure through a supply and demand imbalance.

INPUT perceives that a major consequence of this scenario will be that smaller companies will loose out to larger ones as programming resources become increasingly scarce and vendors' rates increase. This problem will be exacerbated as smaller companies have been slowest to activate action plans and thus will have to pay relatively more as the deadline looms.

50% Increases in Programmers' Hourly Rates Refuted by Vendors

Vendors scotched recent press speculation that programmers' rates are set to rise by 50% per annum.

As shown in Exhibit 4, in the majority of cases, the expected contract rate rise was a more modest 10 to 15%. For salaried staff, the figure quoted was lower and typically under 10%.

Of the one-fifth of respondents predicting an annual increase in excess of 30%, only one vendor anticipated an increase for 1997 of 50%, with a further 25% increase the year thereafter. However, this was on the assumption that COBOL programmers are currently being paid a relatively modest £10 (\$15) an hour.

INPUT research undertaken in this field in the U.S. indicates that vendors' estimates of future programmers' contract rates appear conservative. In the United States, programmers' rates have typically doubled from \$35 per hour to \$70 per hour. Even

allowing for the fact that the U.S. has a greater need for programmers given the large number of old mainframe systems still in use, INPUT perceives that as staff resources become more acute, the search for overseas contractors will have a significant knock-on effect in Europe.

The following section examines the of option of outsourcing programming work to Asian companies.

High Level of Vendor Companies Recruiting Asian Programmers

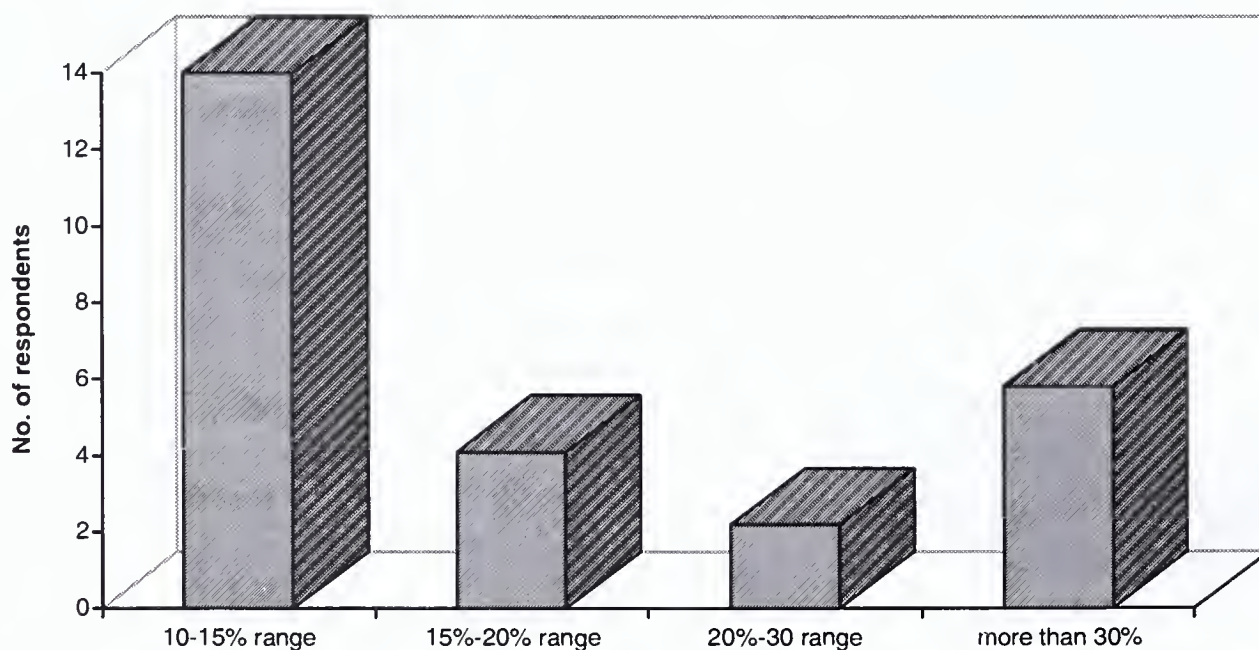
A surprisingly high 74% of vendors questioned are either using or otherwise planning to recruit programmers from Asia, as shown in Exhibit 5.

The main destination for recruiters is India, although the Philippines, Malaysia and Russia were other countries quoted.

Several of the companies questioned have offshore partners in India, including Bull and Information Management Resources. These companies are able to avoid some of the high management and recruitment overheads which typically offset the benefits of cheaper Asian labour costs. Indian rates were perceived by vendors to be 50% below European levels, but by the time additional management overheads were taken into account, the differential dropped to within 25% of European rates.

Exhibit 4

For COBOL Programmers, what Rate of Increase do you Anticipate for Contract Fee Rates in 1996-97?

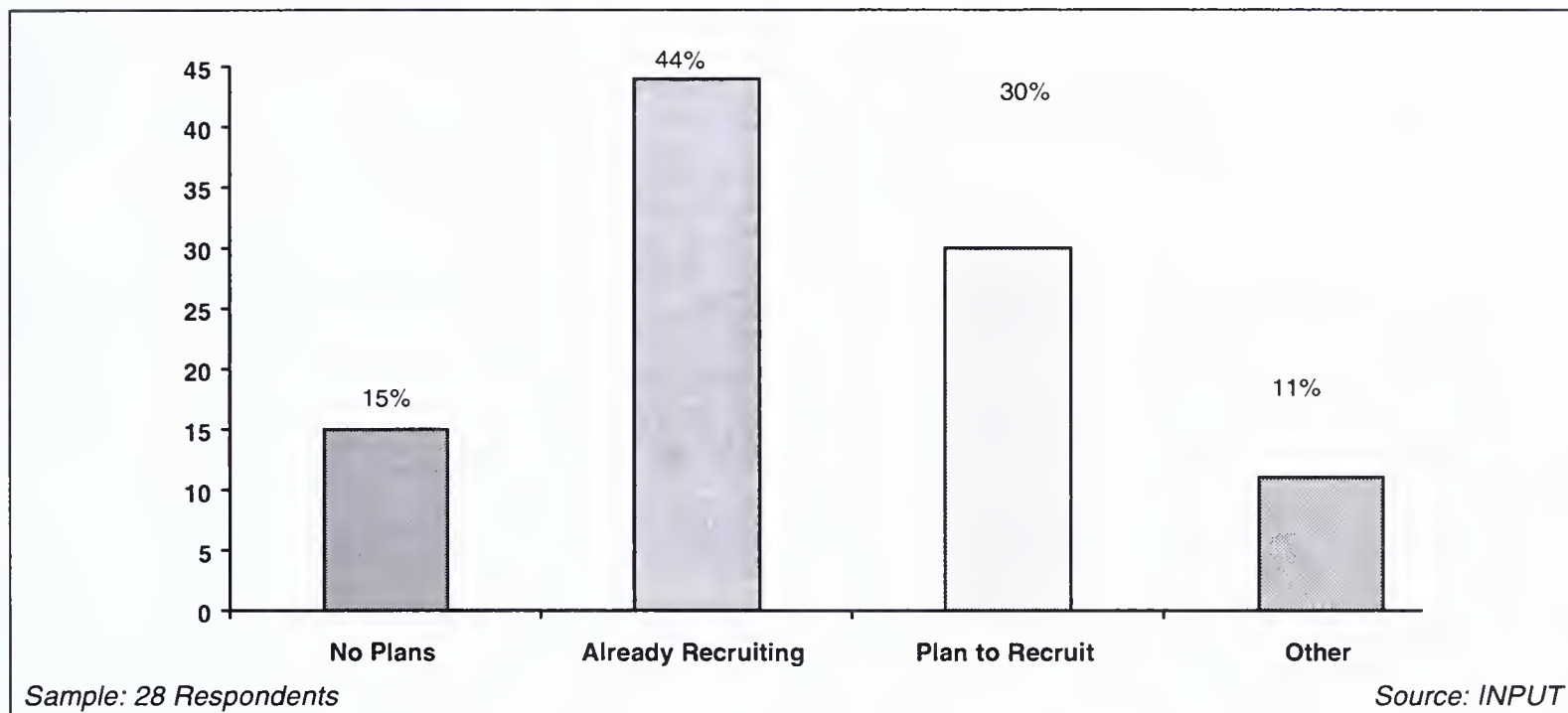


Sample: 30 respondents

Source: INPUT

Exhibit 5

Do you Plan to Recruit Asian Programmers to Meet Your Resource Needs?



Summary

- Given that many companies both in Europe and the United States are already seeking to augment their Year 2000 capabilities with offshore programmers, those not already active in this recruitment market may well find the window of opportunity about to close.
- INPUT perceives that the shortage of programmers capacity shortage worldwide may present a particular problem for companies such as EDS who have taken over full IT management responsibilities from business corporations - including all Year 2000 liabilities.
- Evidence suggests that businesses are already in a litigious mood over the latter and ready to act if their mission critical activities are compromised.
- Most of the benefits of increased charge out rates will be passed on to employees, and will not devolve to improved company profits
- As the resource shortage intensifies, smaller companies may well loose out to larger ones in the battle to rectify their systems in time for the Year 2000 meltdown.

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Research Bulletin

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1996

European Defence Sector: IT Growth Opportunities Buck Declining Trend

As governments attempt to drive budget deficits down in order to comply with the terms of the Maastricht treaty for European monetary convergence, defence budgets in most major European countries have fallen in real terms. Even in the UK — the largest and most robust European defence market — defence spending is still anticipated to reduce in real terms by 14.5% between 1992/3 - 1997/8.

However, despite this overall regressive trend, INPUT detects significant counter-trends related to IT software and services spending in the defence sector. This bulletin examines a number of these trends, including:

- The nature of software and services opportunities emerging in the European defence market
- The extent to which defence sector trends in the U.S. can be expected to be repeated in Europe

- The need for IT service vendors to match their offer to established defence strategy
- A view that consolidation of European defence contractors will generate specific groupware opportunities as consortia members attempt to provide common front end solutions to disparate legacy systems.

European Defence Market Offers Selective IT Opportunities

The paradox of the IT industry is its ability to thrive in recessionary periods. Hence whilst European Governments are reducing defence costs, software and IT services spending remains relatively buoyant as technology is used to substitute force of numbers.

These defence related IT opportunities are summarised in Exhibit 1.

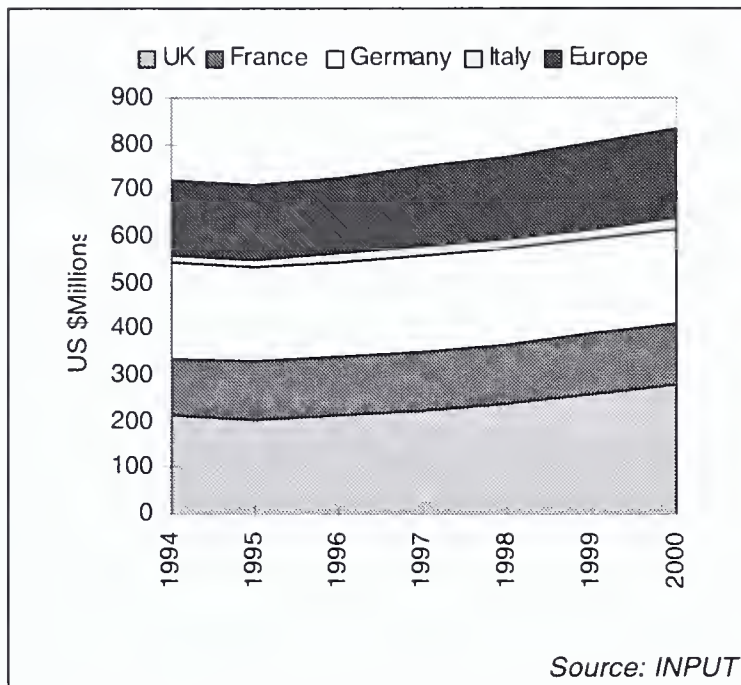
Exhibit 1

Defence Related IT Opportunities

Nature of Activity	Criticality of Response Time	Key Applications	Software & Services Opportunities
Front Line/Operational Resources	Must operate in real-time	Geographical positioning systems, Head Up Displays, Electronic imaging systems	Customised applications software, Secure intranets
Command and Control	Medium to high	Decision Support Systems, secure networks, Scenario & capability Analysis	Network applications, Systems integration, Groupware offering secure platform CAD/CAM envnmts.
Intelligence Gathering	Medium to high	Data warehousing, Secure networks, Geographic Information systems, Image processing, Logistics mapping, Data fusion	Network applications, Professional services /Systems integration, Customised applications software
Core Support Activities	Relatively low	<i>Inventory control</i> ERP/ materials management systems <i>Staff /equipment movements</i> Mission Planning, Frequency and Bandwidth allocations, Supply chain logistics, Payload optimisation	Applications software, Professional services /Systems integration, Turnkey/Systems Integration
Non-core Support Activities	Relatively Low	Payroll processing, Personnel/Medical/Accounts relational databases, CAD/CAM wargame environments, Virtual Training Applications	Outsourcing, Turnkey projects and Systems integration Off the shelf applications software solutions

Source: INPUT

Exhibit 2

European External SI Defence Spend

INPUT's analysis of defence related systems integration growth to the year 2000 is illustrated in Exhibit 2.

As can be seen, the largest market is the U.K., with SI expenditure expected to increase from \$220 million in 1994 to \$280 million by 2000. Overall, this constitutes a modest compound growth rate of approximately 4% per annum, making the defence sector look superficially unattractive in relation to other market sectors.

Notwithstanding this, the size of military contracts tend to be quite large, with over half of European IT systems integration projects being worth in excess of \$10 million each. Furthermore, these contracts tend to run over several years and remain steady generators of cash flow. Not included in our forecast above is the prospect that European mergers of defence contractors may generate additional SI business. This scenario is discussed in the final section of this bulletin.

U.S. Defence Procurement Offers \$700 million p.a. Software Opportunity to Foreign Vendors

In order to maintain military superiority, U.S. defence strategy has shifted primary attention from hardware design to improved control of the following information intensive areas:

- Battlefield communication networks, both in-situ and for relay of information to command headquarters
- 'Digital battlefield' capabilities using Geographic Positioning Systems (GPS) technology
- Computer assisted interpretation of reconnaissance data including satellite imaging
- Tracking of multi-national combat units so as to optimise resources and avoid friendly fire.

Hence in 1993, the U.S. Department of Defence reported that whilst U.S. hardware spending was showing declines in real terms, investment in software was estimated to translate as a CAGR of 6.9% between 1990 and 1995.

Given that approximately 10% of this domestic market is open to foreign competition, this still leaves an annual software market of approximately \$700 million per annum open to foreign contractors. By way of comparison, this available market is on a par with INPUT's 1995 estimates of the French, German and U.K. systems integration/professional services markets combined, as discussed earlier.

As a cautionary note, despite the apparent opportunity the U.S. market presents, Federal Government procurement policies have tended to follow a 'cherry picking' approach — i.e. selecting the best of overseas technologies in order to fill in the gaps left by their own defence contractors.

A challenge to European players, therefore, is develop world's best practice in an unoccupied niche in the U.S. market and use this strategic position to capture a share of other export markets.

IT Opportunity Recognition Must Match Military Strategy

IT companies' best prospect for breaking into defence related business is by matching their product and service offerings to the following emergent military strategies:

- The doctrine of 'manoeuvring'
- The military principle of concentration of resources
- The drive for harmonised systems specifications.

Manoeuvring

This principle relies on breaking down the cohesion of the enemy using small tactically deployed units to knock out infrastructure. Critical to the success of this approach is the ability to accurately track forces on the ground. This is achieved by the development of the 'Digital Battlefield' concept. In the U.S. alone, IT investment in this area is expected to exceed \$400 billion by the year 2005 according to Department of Defence estimates.

Concentration of Resources

While mission critical applications remain firmly under control of governments, non-core support activities are increasingly open to outsourcing. As an example, a recent feasibility study by the UK Ministry of Defence has indicated spend optimisation may be achieved through outsourcing intelligence and geographic information gathering operations in the UK and abroad, allowing internal staffing cuts.

In similar moves, the UK's Royal Navy has attempted to rationalise payroll administration across the three armed forces via the use of external IT contractors such as Oracle. To date, this \$15 million project has over-run in time and budget owing to the complexities of the regulations surrounding the Navy's pay structure. Similar administrative problems have been encountered with IBM's Logic IT Strategy (LITS) which is designed to computerise the RAF's logistics operation.

Harmonisation of Specifications

Attempts have been made both in the U.S. and in Europe to harmonise IT systems adopted across NATO. In the U.S., the Department of Defence has established the Software Reuse Initiative (SRI) and in a parallel initiative in the U.K., the Ministry of defence (MoD) has promulgated systems harmonisation through its communications and information systems (DCIS) initiative. In practical terms, this has resulted in the MoD rationalising 130 networks with 44 different word processors to a common IT infrastructure which uses MS Office Professional software and NT servers delivered by an EDS/Digital consortium.

Exhibit 3

Worldwide Top 10 Rankings of Defence Contractors

Ranking	Company	Country	Defence Revenue \$bn	% of Revenue from defence
1	Lockheed Martin	U.S.	14.40	62.9
2	McDonnell Douglas	U.S.	9.23	63.7
3	British Aerospace	U.K.	7.27	64.1
4	Hughes Electronics	U.S.	6.30	44.7
5	Northrop Grumman	U.S.	5.41	80.7
6	Loral	U.S.	5.21	95.0
7	Boeing	U.S.	4.75	21.7
8	Thomson	France	4.42	31.8
9	GEC	U.K.	4.32	28.5
10	United Technologies	U.S.	3.80	17.9

Source: *The Economist*

The Need for European Players to Consolidate

Exhibit 3 illustrates the dominance that the U.S. has in the world arms industry.

Given that the domestic market in the U.S. is twice the size of the European market and American companies have captured nearly 50% of worldwide defence exports, it appears inevitable that smaller European defence contractors will need to consolidate. In the meantime, there is pressure for these smaller players to reduce their cost base and moderate risk by forming consortia.

A possible catalyst to European consolidation is the decision by the French government to place Thomson SA on the market. Furthermore, recent restructuring

by GEC and Alcatel has enabled both companies to bid for Thomson. Such a move would create the World's third largest defence group. The main obstacle preventing this restructuring is the fact that national governments can put (protectionist) defence issues ahead of compliance with terms of the Single European Market Act - politically, this situation appears set to change.

For IT software and services companies, the creation of fewer larger defence contractors would increase demands for common IT platforms, and in turn, this would create increased systems integration opportunities. A spin-off would be increased demand for groupware products such as those offering secure platform portable CAD/CAM environments.

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- Customer satisfaction levels
- Competitive positioning
- Acquisition targets

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- Outsourcing options
- Systems plans
- Peer position

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Research Bulletin

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1996

Euro Will Add 2% to CAGR of European External IT Market to 2001

At the recent Dublin Summit in Ireland, progression towards a single European currency advanced two steps closer with the uncovering of bank note designs and clarification on the criteria when 'stability pact' penalties will be activated should national governments' debt outstrip GDP growth.

In this analysis we give consideration to recent EC economic forecasts for 1997, and the impact on the external software and services market as affected by restructuring to achieve economic convergence.

The following are main observations:

- Low growth, low inflation conditions continue to prevail throughout most of Europe, with the Italian economy in particular being forced to restructure because of historically high levels of Government debt
- Forced economic restructuring is generating positive conditions for outsourcing to the tune of an extra \$6.5 billion during 1996-2001

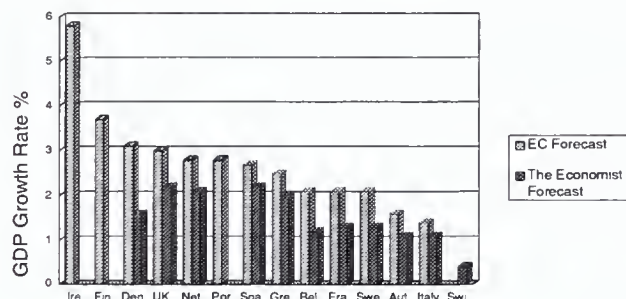
- The implementation of the Euro will be a boost for system integrators and application software sales, particularly in the financial, insurance and retail sectors, accounting for an additional \$5 billion of user systems integration spending between 1996 and 2001
- Due to Maastricht convergence terms, an overall net effect of an additional 2% CAGR has been added to the external European software and services market between 1996 and 2001, raising it to a CAGR of 12% between 1996 and 2001.

Economic Indicators Show Continuation of Low Growth, Low Inflation Environment

GDP growth rates across Europe have lagged both the United States and major Asian economies throughout all of the 1990s. As Exhibits 1 to 3 overleaf show, this lackluster trend looks set to continue into 1997.

Exhibit 1

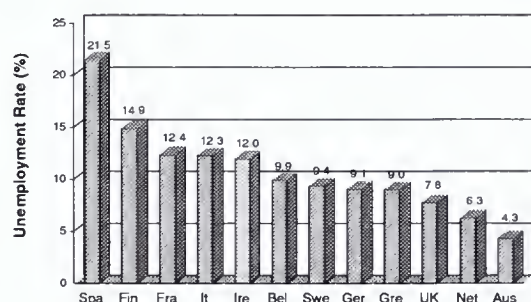
GDP Growth Rates for 1997



Source: The EC/Economist

Exhibit 2

EC Unemployment Forecasts for 1997

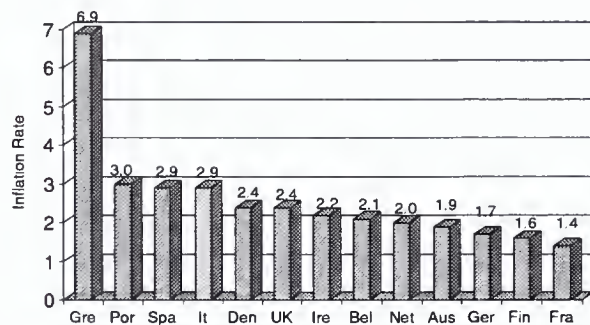


Source: EC

Source: The EC

Exhibit 3

EC Inflation Forecasts for 1997



Source: EC

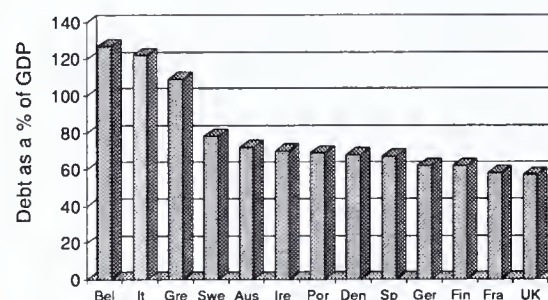
Source: The EC

As the likelihood of a single currency has increased, attention has shifted to how countries with poor government debt to GDP ratios can be called too task if the debt falls outside of pre-agreed limits.

As shown in Exhibits 4 and 5, of the major four economies, Italy is in greatest jeopardy of falling foul of a 'Stability Pact' which promises to impose stiff penalties if gross public debt exceeds 3% of annual GDP. On present trends, France and the UK would also be adversely affected.

Exhibit 4

Estimated Government Gross Public Debt As a Percentage of GDP for 1997

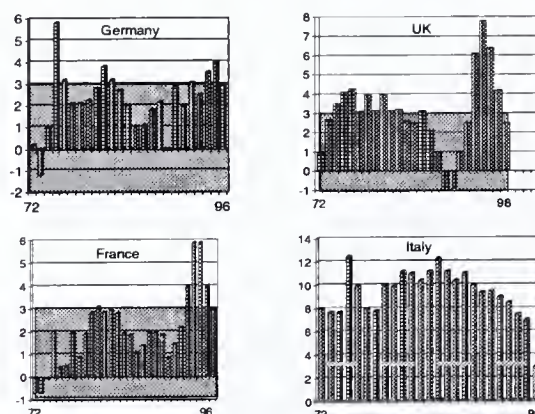


Source: EC

Source: The EC

Exhibit 5

Historical Analysis of Government Financial Deficits (% of GDP)



Source: INPUT

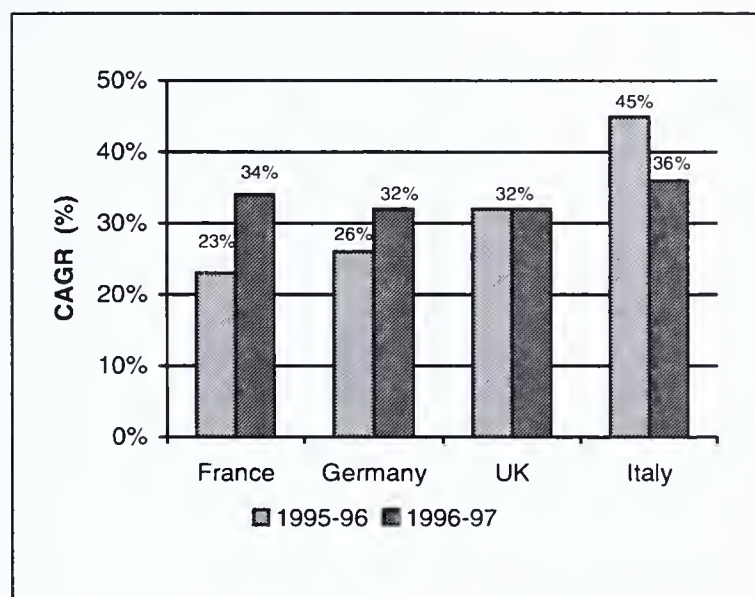
Outsourcing to Increase an Extra \$6.5 bn between 1996-2001 as a Result of Convergence Criteria

An inevitable consequence of the Stability Pact terms will be a pressure on national governments to revisit ways of cutting expenditure. Whilst this will have a deflationary effect on economies as a whole - hence the low GDP growth forecasts - the external software and services sector is likely to be a net beneficiary.

As illustrated in Exhibit 6, INPUT expects to see a surge of new outsourcing activity, brought about by forced restructuring.

Exhibit 6

Forecast % Growth in Outsourcing 1995-96 and 1996-97



Source: INPUT

This trend will be felt especially in countries such as Italy, for the following reasons:

- Italy has once again rejoined the ERM and its exporters have recently been exposed to an uncomfortable increase in Lire strength (L990 to the Dm against exporters' preferred L1,100). This is

likely to force manufacturers to consolidate and outsource

- In the Italian banking sector, there are over 850 banks generating a combined average return on investment of only 2% p.a. Increasingly other sectors are less dependent on these institutions for credit, and this will again force major restructuring and outsourcing
- The state telecoms and electricity sectors are being forced to accelerate downsizing activity as deregulation of both sectors is imminent.

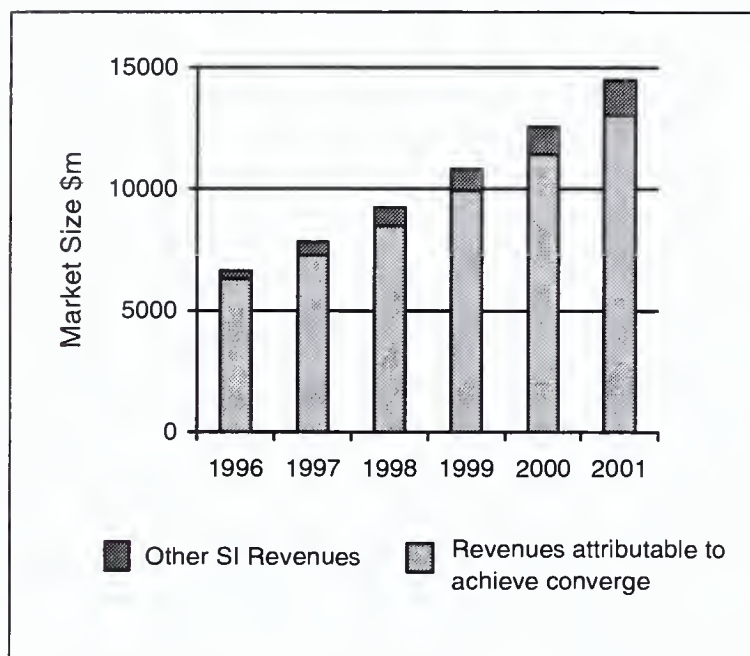
INPUT forecasts Italian outsourcing growth of 45% between 1995 and 1996 and a further 36% between 1996 and 1997. Across Europe, actions necessary to institute the Euro will be worth an extra \$6.5 bn in outsourcing activity between 1996 and 2001.

System Integrators and Dedicated Software Houses Also Chief Beneficiaries

Business restructuring to facilitate the Euro will also be a boost for systems integrators, particularly in the financial, insurance and retail sectors.

Collectively this business will account for an additional \$5 billion of user SI spending between 1996 and 2001, as illustrated in Exhibit 7.

Exhibit 7

European SI Revenues 1996-2001

Source: INPUT

Heading the list of software companies likely to benefit from the facilitation of the Euro is Misys – the World's tenth largest applications software company and major investor in single currency compatible banking and insurance software.

Illustrating this potential, the market value of this company has increased by more than 40% during 1996.

Maastricht Convergence Terms Add an Extra 2% CAGR to the external European IT market between 1996 and 2001

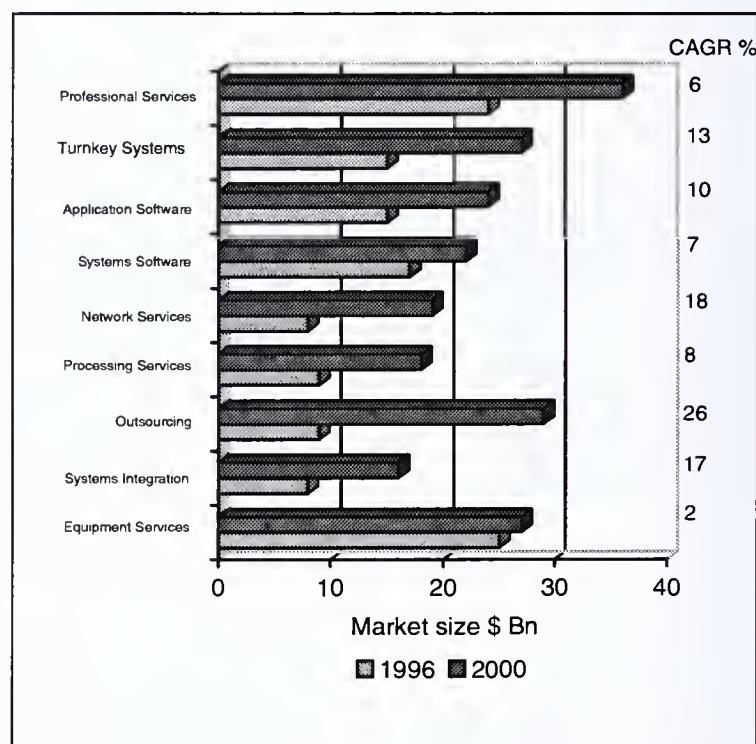
In 1995, INPUT forecast European-wide growth rates across all sectors at 7% CAGR between 1995 and 2000. In 1996, INPUT has increased this figure to 12% CAGR between 1996 and 2001 to account for the impact of the following factors:

- Heightened investment in the Internet/Intranets
- Additional spending to tackle the Year 2000 issue
- The implementation of the Euro - estimated to account for 2% increase in the CAGR between 1996 and 2001.

As noted earlier, some delivery modes are expected to benefit more than others from these developments. Exhibit 8 provides a breakdown of growth forecasts for different sectors.

Exhibit 8

European Growth Rates 1996-2001 by Delivery Mode



Source: INPUT

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Research Bulletin

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1996

Improved Service Standards: Key to Sustained Competitive Advantage

The 1990s have been heralded as the era of super competition: an era when buyers have the opportunity to choose among a multitude of equally plausible vendor offerings. In this environment, the difficulty for vendors is how to achieve sustainable differentiation. Many strategies have been tried - product segmentation, brand stretching, increasing/decreasing functionality to name but a few - but inevitably, all of these product innovations can be copied by competitors eager to play 'catch up'.

While the migration of applications to the Net and the Web will create new commercial opportunities, such phenomena ultimately serve only one purpose in business: to enable organisations to deliver more efficient and better quality service to their customers.

Arguably it is only through improving service standards that IT vendors can achieve sustainable competitive advantage, since the 'moment of truth' - i.e. the instant when a customer interfaces with the vendor's staff or its offerings - is an event that competitors are seldom, if ever, party to. Service standards are for this reason not

easy to copy. Bearing this in mind, this bulletin makes reference to recent INPUT research which shows:

firstly, at the business to end customer interface:-

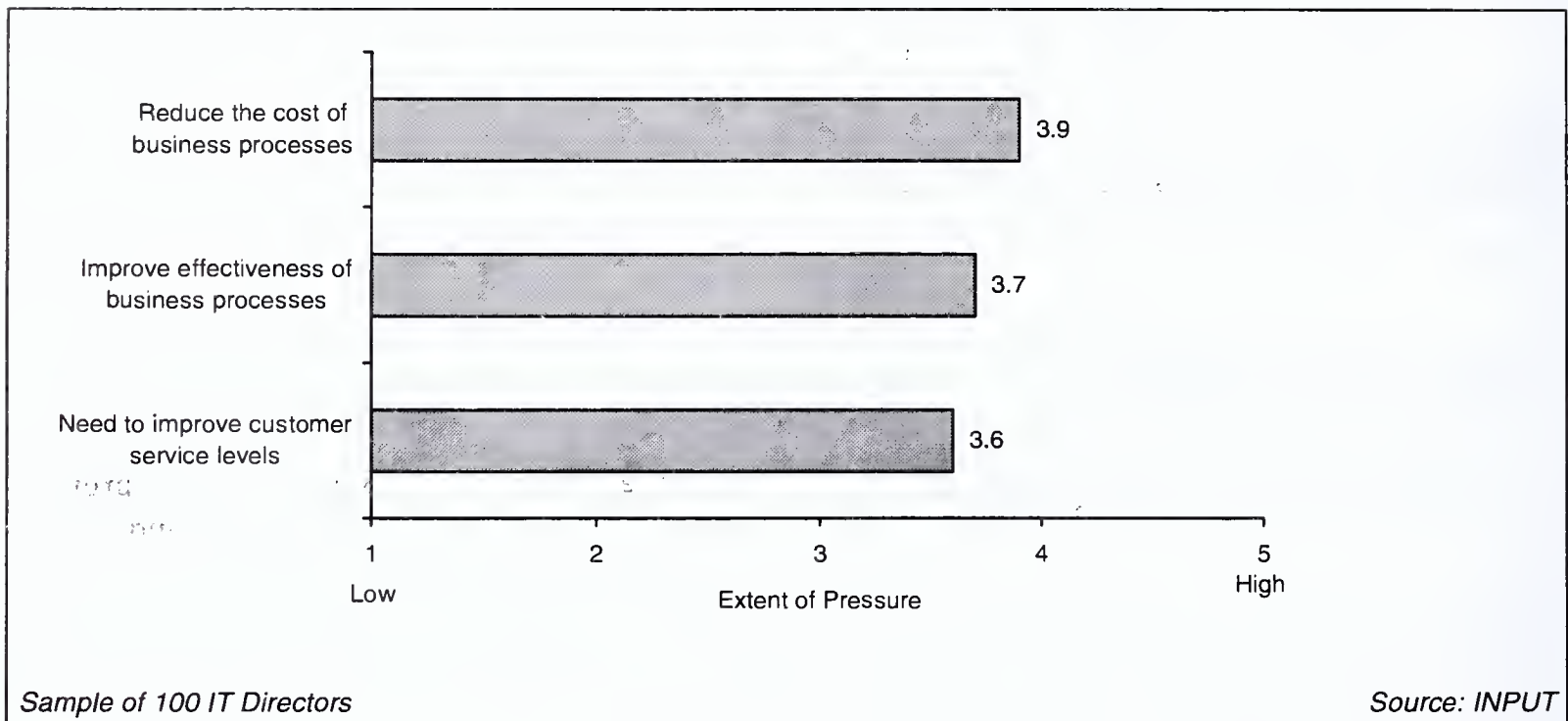
- How improvement of user service levels is one of the major pressures facing user organisations
- In what ways technology is being applied to assist users in their business to end customer interface

secondly, at the IT vendor to business customer interface:-

- How (a) the availability of quality vendor consultancy services coupled with (b) good project management skills are key aspects of service provision expected by IT directors. Here, expectations do not match vendor achievement.
- How the concept of Customer Care is being used by service vendor organisations to achieve competitive advantage.

Exhibit 1

Top Three Pressures Facing User Organisations Now



Customer Service a Top Three Business Priority

In a recent survey, 100 IT Directors in France, Germany and the UK were asked to identify the biggest pressures currently facing their organisations. The top two responses related to the cost and effectiveness of business processes. However, the need to improve customer service came a close third, as shown in Exhibit 1.

This survey confirms that businesses are being forced to improve customer service levels in parallel with cutting process costs. In fact, differentiation by means of quality customer service was considered to be key.

However, there is a potential conflict here: while reducing headcount, companies are expected to *increase* levels of customer responsiveness.

At a tactical level, the desire to free up staff to be more customer-focused can only be achieved by reducing their administrative

burden - increasingly this has become possible through the application of new technology (see next section).

The Consumer Becomes the Focus of IT as High-Tech Customer Service Emerges

Today businesses are witnessing the birth of a new electronic marketplace which offers highly sophisticated forms of interactive customer service. Recent advances in technology and communications are enabling businesses to extend their reach via electronic points of presence to target, attract and retain customers.

Furthermore, the old limitations of commerce are being eradicated. Business can now be conducted continuously, at the consumer's convenience, at any time and from almost any place.

Electronic, interactive forms of customer service represent a major shift for the

business community. Home share trading, smart phone banking, Internet shopping, multimedia kiosks and high-tech customer service centres are changing the focus of corporate computing: from an internal IT focus to an external customer service focus.

To support these services, broad applications areas are converging:

- Networking from electronic commerce
- Advanced customer information database technology from decision support
- Online transaction processing, now encompassing multimedia transaction content.

This shift from internal IT focus to consumer focus requires IT departments to take a very different perspective, since consumers' demands can be much greater than those of typical corporate end-users. Consumers will expect computerised services to be as dependable as other services such as electricity, telephony or water supply.

Vendors have not been slow to advance the cause of interactive customer service. Information and service providers have been busy combining computing and networking technologies to make it easier for consumers to purchase services and products. And leading telecomms companies around the world are at present building broadband infrastructures to prepare for the coming explosion of multimedia content.

Already, leading-edge multimedia applications have appeared in the form of online messaging services, electronic newspapers, kiosks, electronic libraries, interactive TV and home shopping.

However, while vendors are pushing the boundaries of technology to deliver these high-tech customer services, some of the benefits may be lost if vendors fail to understand basic buyer values, i.e. what customers really want.

In this sense, IT and telecomms service providers alike must stay in touch with the needs of their customers, and their customers' customers.

At the service vendor to business user interface, survey evidence shows that business users are also looking for improved quality in the services offered by vendors. These high-end service aspects are discussed in the next section.

In Demand: Top Level Consultancy Services Coupled with Project Management Skills

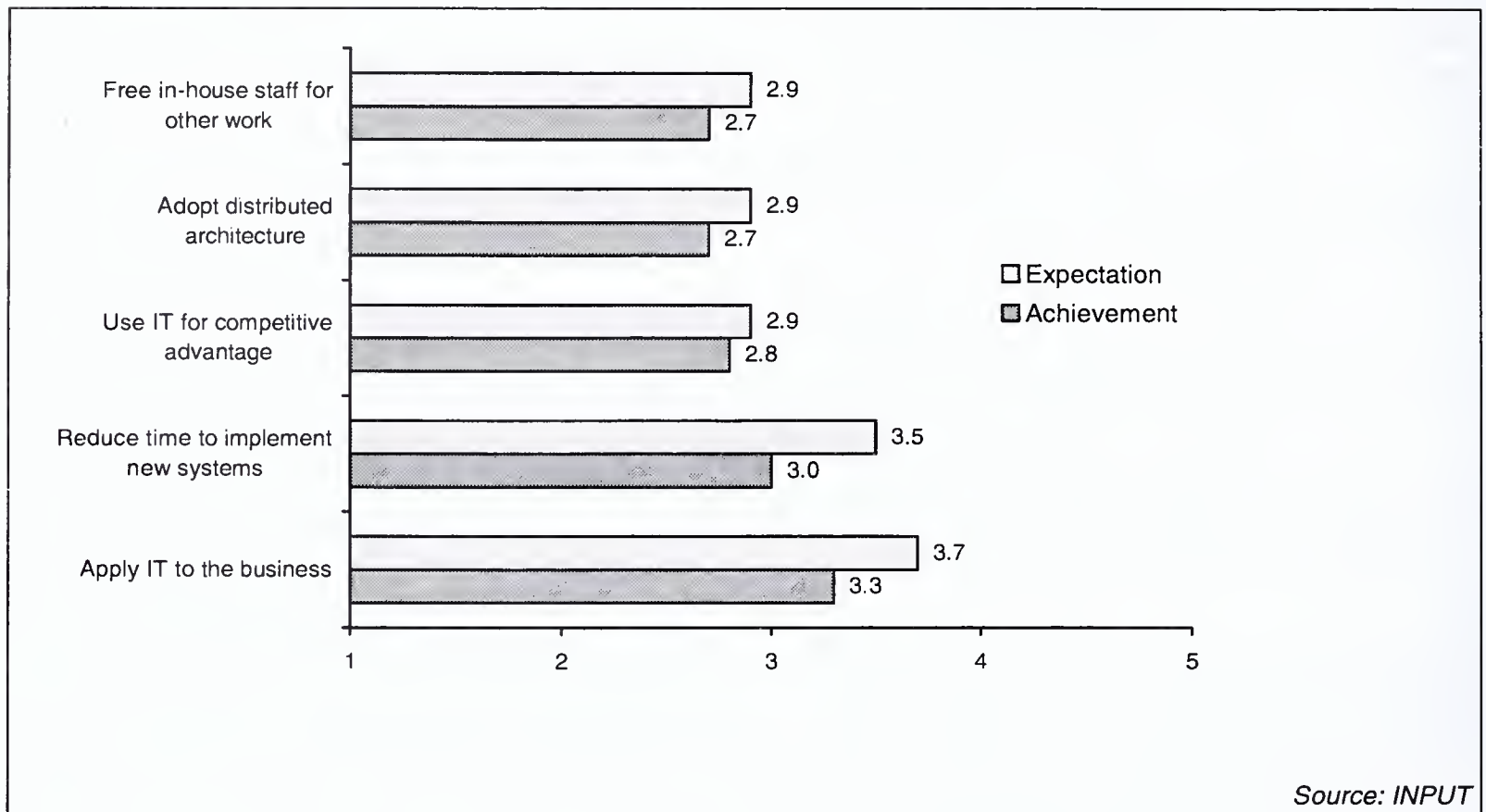
As shown in Exhibit 2, IT directors expressed a particular need for:

1. increased effectiveness in vendors' ability to apply IT to their business - which rated 3.7 as an expectation and
2. reduced time taken to implement new systems - which rated 3.5. Perceived vendor achievement in these areas managed only 3.3 and 3.0 respectively.

Many IT directors acknowledged that 'ability to apply IT' noted above translated as a need for the services of vendor consultants with industry specific business knowledge. 'Reduced time to implement' corresponded to competent project management services.

Exhibit 2

Contribution to IT Goals - Expectation and Achievement



The Importance of Customer Care as a Vendor Service Offering

The concept of Customer Care is not new, but is non-the-less gaining heightened attention by vendors, with the prime motive being the need to create enhanced customer loyalty.

Yet in the desire to improve standards, service organisations must be careful. It is easy to become too driven by the latest trends in technology, whilst ignoring the basic human principles of Customer Care.

For example, the training and motivation of specialist staff is often mistakenly assigned a low priority in Customer Care programmes. In consequence, frustrated customers can be left with the suspicion that "care" is a bolt-on extra, and not taken too seriously in the boardroom.

Customer Care applies to every type of interface with the customer, including telephone (both receiving calls and telemarketing), direct mail, events, and so on.

Key to Customer Care is the need for constructive feedback on complaints. You can only care for the customer effectively if you are prepared to listen to what he/she has to say. Exhibit 3 lists several recommendations on how to deliver excellent Customer Care.

Exhibit 3

Steps to Positive Customer Care

- Keep communication lines open, and remain accessible to customers (via dedicated service points, care lines, comment slips, etc.)
- Invite customer feedback
- Monitor feedback and use to implement better service
- Communicate your responsiveness back to the customer
- Personalise the service wherever possible. A personal touch costs very little, but can create very loyal customers
- Never assume you know what the customer wants
- Invite complaints and react positively to them

Source: INPUT

One IT vendor which has done much to advance the cause of Customer Care is Unisys. Its Customerize programme includes ongoing research of the best practices of outstanding customer-focused organisations. To "Customerize", as Unisys defines it, is to make a company more responsive to its customers and better able to attract new ones.

Another company which is paying far greater attention to customer care is IBM: Lou Gerstner reportedly spends 40% of his time talking to clients as a main means of, quote, 'taking IBM back to its roots'. He may have added here that this refocusing on customer needs is repairing much of the credibility IBM lost with its customers during the late 1980s.

Whilst promoting the cause of enhanced customer service at times almost sounds cliched, the results appear to speak for themselves - according to one source, IBM is currently winning four out of five computer service contracts that it chooses to bid for.

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